aim coaching

AIM SCHOOLWIDE PACT LESSONS

LESSONS TO SUPPORT INSTRUCTION IN

SCIENCE

SOCIAL STUDIES

ENGLISH LANGUAGE ARTS

TEXAS
The University of Texas at Austin

UNIVERSITY OF MARYLAND

The Meadows Center
FOR PREVENTING EDUCATIONAL RISK

PACT
PROMOTING ADOLESCENTS' COMPREHENSION OF TEXT

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This work was supported by grant R324A200012 from the Institute of Education Sciences, U.S. Department of Education, and model demonstration H326M200015 from the Office of Special Education Programs, U.S. Department of Education, to the University of Maryland and The University of Texas at Austin. The opinions expressed are those of the authors and do not represent the views of the U.S. Department of Education.

INTRODUCTION

The purpose of these lessons is to:

- Familiarize students with all the components of PACT.
- Teach the get the gist strategy used within critical reading.

All lessons contain all three PACT components:

- Comprehension Canopy
- Essential Words
- Critical Reading

Note

These sample lessons serve as examples to show you how PACT practices can fit together and be delivered to support students' content knowledge and literacy development. As such, we recommend that you deliver a few of the lessons so you and your students become familiar with PACT. These lessons are soft scripted, which means that the scripted language is a guide and does not need to be followed verbatim. Additionally, you can modify the lessons to suit the needs of you and your students.

PACT IMPLEMENTATION OVERVIEW

1. Comprehension Canopy
   - Introduce the topic of the lesson.
   - Provide a springboard that provides background information and piques interest.

2. Essential Words
   - Share and define the essential word.
   - Provide a visual representation of the word and discuss related words.
   - Share examples and nonexamples.
   - Have students talk about the word with a partner.

3. Critical Reading
   - Introduce the text, the topic, and the culminating question.
   - Introduce students to or remind students about the get the gist or get the gist with partner reading strategies
   - Model get the gist.
     - Read the section or model partner reading with the section.
     - Share the most important "who" or "what" and the most important information about the "who" or "what."
   - Facilitate guided practice.
     - Read the section of text aloud slowly.
     - Have students follow along and review the text.
     - Give students time to share and discuss the most important "who" or "what" and the most important information about the "who" or "what."
   - Facilitate independent or partner practice.
     - Have students read the section of text.
     - Give students time to determine the most important "who" or "what" and the most important information about the "who" or "what."
     - Circulate and provide support.
   - Answer the culminating question.
     - Review the gist statements.
     - Remind students of the culminating question.
     - Facilitate students sharing and discussing possible answers to the culminating question.

Note

- These steps look slightly different for partner reading. With partner reading, you will model the procedure with students and then they will engage in guided practice with your support.
- How many sections you devote to modeling, guided practice, and independent or partner practice will depend on your students and the level of support they need. Stay on a given step (e.g., guided practice) until you feel your students are comfortable and understand what is expected of them

THOUGHTS & CONSIDERATIONS FOR LESSON IMPLEMENTATION

You may wish to add the culminating question to the graphic organizer before giving the organizer to students rather than having students write the question down.

You may also choose not to use the graphic organizer. If you are not using the organizer, you may want to allow students to annotate or write down each gist statement on their own paper.

Although we want you to avoid too much "teacher talk" in the lessons, it is important to model your thinking for students as they learn this process. The extra support versions of the lessons provide great examples of "teacher talk" that you can use as a model.

When sharing examples of the "who" or "what" or the most important information during critical reading, you will also want to use nonexamples and think aloud about why a word, or a piece of information, is not the most important information and should not be included.

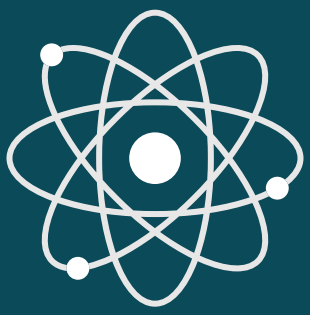
When sharing the "who" or "what" and the most important information, you can have students copy it down, underline the information in the text, or just discuss it.

When coming up with gist statements, students can say their gist statement aloud, write their gist statement, or dictate their gist statement to you to write on the board.

If you are writing on the board what students share, be mindful to explain why you do or do not write their answers on the board.

You may need to deliver a mini lesson on pronouns if you are using the gist pointers and students are struggling with pronouns. You can find a mini lesson (10–15 minutes) in the resources section of the lesson book.

When doing partner reading, you can have partners switch roles after each section so that each student has a turn with both roles.



SCIENCE

Get the Gist With *The Venus Flytrap*

PURPOSE	Teach and practice how to get the gist of a passage
TOTAL TIME	40–45 minutes
MATERIALS	• Copy of *The Venus Flytrap* to show on document camera or equivalent device • Copy of *The Venus Flytrap* for each student • Copy of the get the gist cue card for each student • Copy of the get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• nutrients
CRITICAL READING (30 MINUTES): ***THE VENUS FLYTRAP***	• Teach students how to get the gist using the selected text. • Students will identify a gist statement for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Note Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> You may already know a great deal about how plants grow. You may already know that they need water and sunlight to gather nutrients to grow. The process that plants use to transform water and sunlight into nutrients is called "photosynthesis." Humans need nutrients, too, but we largely get them by digesting the food we eat.

Show Students the Springboard Images

Show Image 1.

> Different plants grow in different areas, and each plant specially develops to grow in that area. Let me show you a few. This first plant is a kind of fern. Some ferns grow in mountains and some even in deserts, but this one grows in shady places in the rain forest. Do you notice how its fronds are very large? That's so the plant can gather as much sunlight as possible. The plant is large and bright green because the soil is so rich in nutrients.

Show Image 2.

> Now, let's look at another set of plants. These plants are in the desert. Turn to your partner. Share two things you notice about how these plants grow, how they are different from the fern, and why they might be that way.

Give students about 30 seconds to discuss, and then ask a couple of groups to share.

> So, plants look different based on where they grow. Today, you will learn about a plant that grows in such a difficult place that it doesn't act like a typical plant at all!

ESSENTIAL WORDS

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "nutrients." Everyone say "nutrients."
>
> [Student name], will you please read the definition of "nutrients"?

Student reads: "Substances that plants, animals, and people need to live and grow."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

> The first image shows fruits and vegetables. They contain nutrients that animals and people use to live and grow. The second image shows sunlight shining down on plants. Sunlight provides nutrients to plants to help them live and grow.

RELATED WORDS

> Some words that are related to nutrients are "foods" and "nutrition." Foods provide nutrients. Foods with lots of nutrients are considered nutritional.

EXAMPLE USAGE

> Here is the word used in a sentence: Some soil is low in nutrients.

EXAMPLE

Examples of nutrients are the nitrogen, oxygen, and iron found in soil because they provide energy to most plants to help them grow.

NONEXAMPLE

A nonexample of a nutrient is yellow dye #5. It is in some foods, but it is not a nutrient because you don't need it to grow.

TURN AND TALK

Now turn to your partner and discuss the following: What are your favorite things to eat? What nutrients are in your favorite things to eat?

Provide time for partners to talk.

CRITICAL READING OF TEXT

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

We now will read a passage called *The Venus Flytrap*. It's about a plant that has developed in a very peculiar way.

By the end of the reading, I want you to be able to answer our culminating question: ***How has the Venus flytrap developed specifically for its surroundings?*** The culminating question helps us remember the big picture information we learned from reading this text.

Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we will learn today.

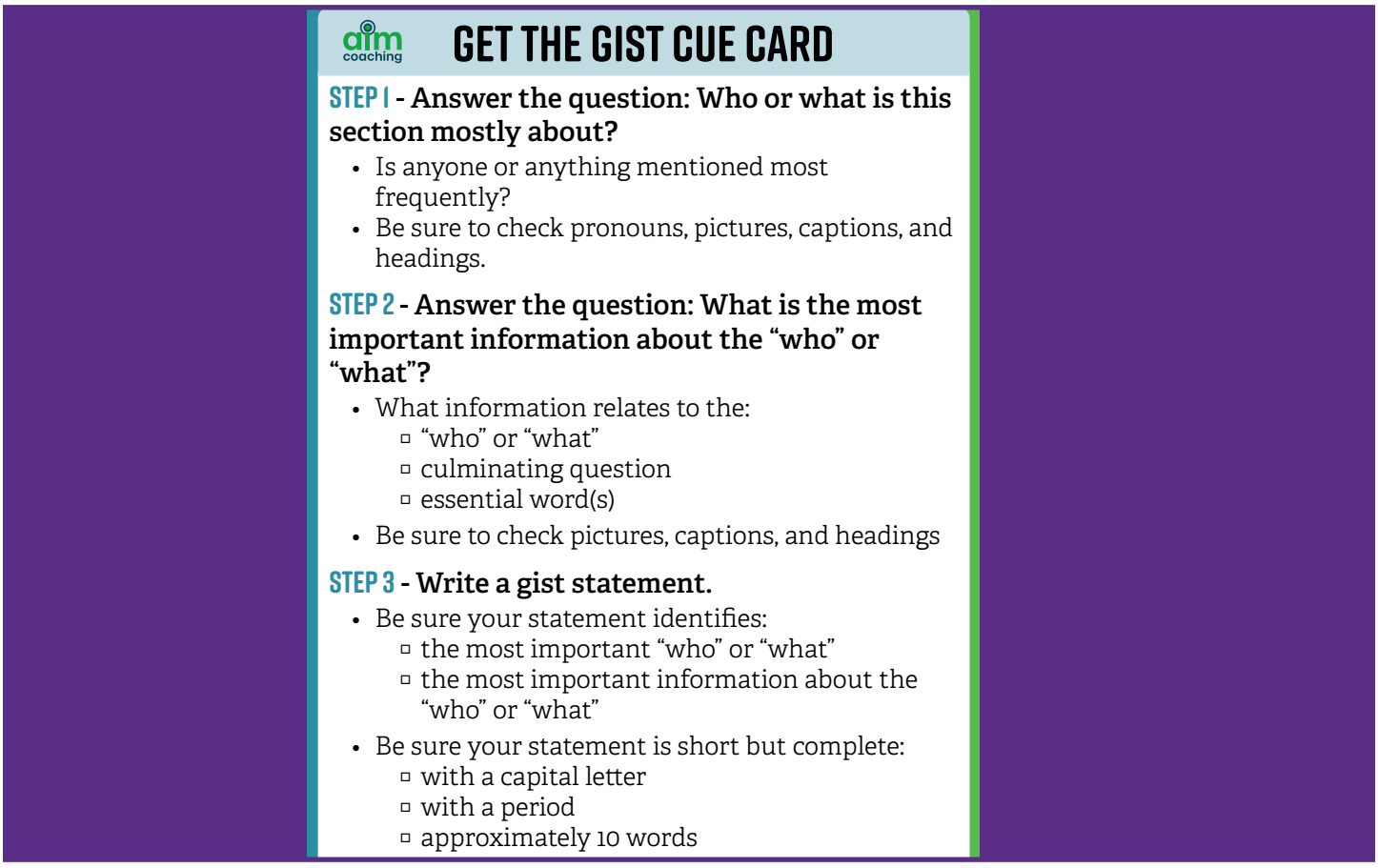
Repeat the culminating question and provide time for students to write.

INTRODUCE THE GET THE GIST STRATEGY

Today you will learn a new way to find the main idea of a paragraph or section of text. This strategy is called get the gist. The gist is the most important idea. With practice, you will be able to use this strategy to make sure you understand what you read and to remember the most important ideas. We'll be able to use these ideas to help us answer our culminating question at the end of the lesson.

As we read, we will stop periodically to get the gist. This means that we'll use this strategy to identify the main idea of each section of text. Get the gist helps you to determine the most important ideas about what you read. First, you identify the most important "who" or "what" in the section. Then, you identify the most important information about the "who" or "what." Finally, you write or say a short, complete sentence containing that information. This sentence is called a gist statement.

Look at your get the gist cue card. It has the steps on it.



The first step is to identify who or what the section of text is mostly about. Underneath the first step question are two pointers you can use if it's hard to figure out who or what the section is about. The first pointer is to see if there is anyone or anything mentioned frequently in the text. The second pointer is to pay attention to pronouns, pictures, captions, and headings.

Pronouns might take the place of an important "who" or "what," so a sentence with a pronoun might contain important information. We can always circle pronouns and draw an arrow back to the "who" or "what" the pronoun is replacing. Remember that captions are the lines of text under a picture that describe that picture.

Then, in the second step, we'll identify the most important information about the "who" or "what." Sometimes this is hard to narrow down, so there are a couple more pointers to help you. The first is to see what information in the text relates to the "who" or "what," the culminating question, or the essential word. The second pointer is to remember to check pronouns, pictures, captions, and headings.

I'll show you how to do this as we read the first section of *The Venus Flytrap*.

MODEL GET THE GIST WITH SECTION 1

Let's get started! I will read the first paragraph and then identify the gist.

Read Section 1 aloud slowly.

There is a lot of information in this paragraph. Let's do the first step of get the gist and see if we can figure out who or what this section was mostly about, or what the subject of this section is.

Look at your cue card and read Step 1 with me.

Everyone reads Step 1 together.

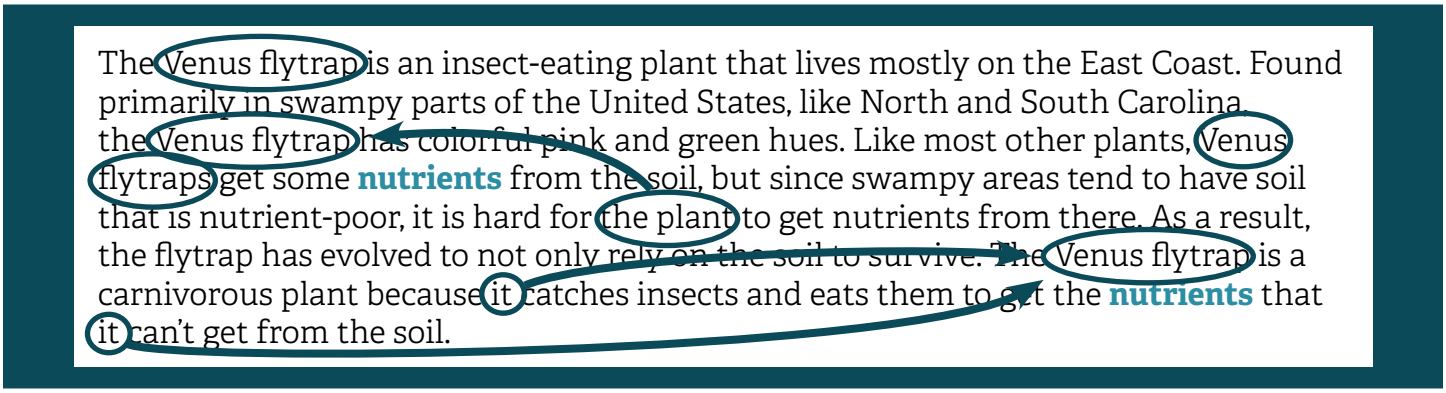
Let's figure it out together. I will start with the first pointer: "Is anyone or anything mentioned frequently?" Let's see. A subject is usually a person, place, or thing that is performing an action in a sentence, and it tells us who or what the sentence is about.

> The second pointer suggests checking headings. Sometimes the title of the text gives us a clue about what the subject is. The title is *The Venus Flytrap*, so that gives me a hint that the subject is the Venus flytrap. I'll check if that is indeed the subject by seeing how often it is mentioned.

Model circling each time the Venus flytrap is mentioned in the first section. As you circle, demonstrate thinking aloud by saying things such as the following.

> I see the Venus flytrap is mentioned right here in the first sentence. I'm going to circle that.
>
> The author mentions the Venus flytrap again in the last sentence.
>
> The author writes, "The Venus flytrap is a carnivorous plant because it catches insects and eats them to get the nutrients that it can't get from the soil." Not only does the author mention the Venus flytrap, but the author also uses the pronoun "it" to refer to the Venus flytrap twice. I will go ahead and circle "it," too. I will draw an arrow pointing to "the Venus flytrap" because "it" is referring to the Venus flytrap.
>
> Remember we need to be on the lookout for pronouns like "he," "she," "it," and "they" because those pronouns might take the place of the most important "who" or "what" of a section.

A marked-up passage might look like this:



> I think the most important "what" is the Venus flytrap because almost every sentence is about the Venus flytrap.

Write "Venus Flytrap" on the board. Have students copy this on their graphic organizer for Section 1.

> Let's go back to our cue card. Read the second step with me.

Everyone reads Step 2 together.

> I'm going to use the first pointer to help me. It says to pay attention to information that relates to the "who" or "what." In this case, that's the Venus flytrap. I will make a list of the important information in this paragraph about the Venus flytrap.

Write essential information on the board and have students copy. Demonstrate thinking aloud by saying things such as the following.

> Here it says that "the Venus flytrap is an insect-eating plant." I think that's important information, so I'm going to write it down, using my own words, "eats insects." I don't have to write a complete sentence for this part. These are just my notes.
>
> The text also says that the Venus flytrap lives "in swampy parts." So, I'm going to write down "lives in swamps."
>
> The author writes that the Venus flytrap is colorful, but I don't think this is important information as it's not related to our culminating question. So, I'm not going to write down "colorful."
>
> The author also says that the Venus flytrap gets "some nutrients from the soil." The author then adds this "is hard for the plant" because the soil in swampy areas "is nutrient-poor." This means there aren't a lot of nutrients in the soil. So, in my own words, I'm going to write "gets little nutrients from the soil."
>
> Because there aren't a lot of nutrients in the soil, the author explains that the Venus flytrap "catches insects and eats them to get the nutrients." That seems important for understanding the passage, too, so, next to "eats insects" above, I'm going to add "to get nutrients."

Possible answers: eats insects, lives in swamps, gets little nutrients from the soil, eats insects to get nutrients

Now that I have all of the important information written down, it's time to write a gist statement. The gist statement is a sentence that states what the main idea is. It needs to be a short, complete sentence—around 10 words—so that we don't include a lot of unnecessary details.

Based on my notes, I know that the Venus flytrap eats insects to get nutrients because the soil in swampy areas doesn't have a lot of nutrients.

I need to put this important information in a shorter sentence—the gist statement.

Write "The Venus flytrap eats insects because it doesn't get a lot of nutrients from soil." Have students copy this on their graphic organizer for Section 1.

Let's check our gist statement.

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement include the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 2

Now it's your turn to practice with me so we can get the gist together. Remember, this means you're identifying the main idea. We will use the same cue card I just used.

Who can tell me the first step of get the gist?

Answer: Identify who or what the section is mostly about

That's right! Remember that you can use our gist pointers to help if you need. What is the first gist pointer for the first step?

Answer: Ask if anything or anyone is mentioned most frequently

That's right. Our first gist pointer reminds us to look for frequently mentioned people or things. What is the second gist pointer for the first step?

Answer: Check pronouns, pictures, captions, and headings

Correct! Your second pointer reminds you to keep an eye out for pronouns, pictures, captions, and headings.

I'll read this section aloud and you can follow along. Remember to see if you can figure out the subject of this section and determine who or what this section is mostly about. Circle people or things mentioned frequently and keep an eye out for important pronouns, pictures, captions, and headings.

Read Section 2 aloud slowly.

Alright, I will give you just a minute or two to look over the passage and to check what you circled. See if you can determine who or what it is mostly about. Remember to use the gist pointers for the first step if you need. We'll come back together and discuss our answers once people are finished.

Allow students time to work through the passage.

It's time to see who or what you think this section is mostly about. As your peers share their answers, you may continue to mark up your passage. Who can raise their hand and tell me some of the words they circled in this section?

As students share, show your marked-up passage so students who need to circle additional words may follow.

Possible correct answers: the Venus flytrap, the trap of the Venus flytrap

That's right. This section mentions "the Venus flytrap" as well as "the trap". Who can raise their hand and tell me what else we need to circle in this section?

Possible correct answer: it

That's right! We also need to circle pronouns like "it" and draw arrows to the noun to which they refer. Did anyone circle any other words?

Possible incorrect answers: leaf, leaves

> Yes! The author also mentions "leaf" and "leaves" a few times. I will circle those in a different color to help me see which subject is the most important in this section.
>
> Now that we have shared some ideas, turn to your partner and tell them what you think the most important "who" or "what" was in this section and why.

Answer: the Venus flytrap, flytrap, or the trap of the Venus flytrap because it is mentioned most frequently and relates to our culminating question.

> Correct, the trap is the most important "what" of this section because it is mentioned most frequently. The author does talk a lot about leaves, too, but not as much as the trap. So, you are right that the who or what is the trap.

Write "the trap" on the board. Have students add this to Section 2 of their graphic organizer.

> Who can tell me what the second part of get the gist asks us to do?

Answer: Write the most important thing about the "who" or "what"

> That's right. Let's go back to our cue card. Who can read the get the gist pointers for the second step aloud for us?

Call on one student to read.

> Now you and your partner will use the pointers to make a list of the important information in this section about the trap. Turn and talk to your partner and write the important information that relates to the "who" or "what," the culminating question, or the essential word.

Give students time to talk to their partners and list important information about the trap.

> Alright, let's come back together and see if we can list all of the important information about the trap in this section. Who can tell me one of the important things that they wrote down?

Write ideas on the board as students share.

Possible answers: has leaves with trigger hairs that detect insects, snaps shut, only keeps bigger insects

> Great! Now let's come up with our gist statement. Remember we want to keep the gist statement short—around 10 words. Turn to your partner and tell them what you think the most important information about the trap is.

Have a few students share their thoughts with the class.

> I agree, I think the most important information about the trap is that the leaves have hairs that can detect bigger insects, causing the trap to snap shut. That is what I will write down, but in fewer words.

Write "The trap has leaves that close on big insects" on the board.

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement include the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 3

> Let's practice again with the next section. I'll read the section aloud and you can follow along. Remember that our first step is to figure out who or what this section is about. Following the gist pointers, we will circle things or people mentioned frequently. We also will identify important pronouns, pictures, captions, and headings.

Read Section 3 aloud slowly.

> Alright! Now it is your turn to find out what this section is mostly about. As you read, remember to use the gist pointers and to circle the things that are frequently mentioned. We'll come back together and discuss our answers once people are finished.

Give students time to figure out who or what the section is about.

> **Who can tell me what they think this section is mostly about and why?**

As students share, show your marked-up passage so students who need to circle additional words may follow.

Answer: Venus flytrap, flytrap, or trap

> **That's correct. This section is mostly about the Venus flytrap.** Notice that I circled both "the Venus flytrap" and the pronoun "it" and drew an arrow back to "flytrap" when that is what "it" is replacing.

Write "the Venus flytrap" on the board. Have students check their graphic organizers for Section 3.

> **Alright, now we are on the second part of get the gist. Who can remind us of what we need to do now?**

Answer: Write the most important thing about the "who" or "what"

> **That's right. We need to write the most important thing about the "who" or "what."** The first gist pointer reminds us to pay attention to information that relates to the "who" or "what." In this case, that is the Venus trap. **So, now, you are going to make a list of the important information in this section about the Venus flytrap.**

Allot students time to list important information about the "who" or "what."

> **Who wants to share some of the important information about the Venus flytrap that they wrote down?**

Call on a few students to share ideas and write them on the board.

Sample answers: squeezes tightly, has digestive juices to dissolve the inside of the insect, takes 5–12 days, opens and rain or wind carries exoskeleton away

> **Great! Now that we have our important information written down, we need to determine what the gist is. Turn to your partner and tell them what you think the most important information about the Venus flytrap is.**

Have a few students share their thoughts with the class and provide feedback as needed.

Answer: The flytrap takes 5–12 days to squeeze insects tightly to dissolve their insides.

> I agree! The most important information about the Venus flytrap is that it squeezes tightly for 5–12 days while digestive juices dissolve the inside of the insect. This is what I'm going to write down but using fewer words.

Write "The flytrap takes 5–12 days to squeeze insects tightly to dissolve their insides" on the board. Have students write this gist statement on their graphic organizer for Section 3.

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement include the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH SECTION 4

> Now you will try on your own. You will read the last section and circle the most important "who" or "what." Then, you will identify the most important information about that "who" or "what." Remember that you can check your cue card. Write your answers in Section 4 of your graphic organizer.

Provide time for students to work. Circulate and provide support as needed.

> Now, let's discuss who or what the section is mostly about. Raise your hand if you have an idea.

Have a few students share their thoughts with the class and provide feedback as needed.

Answer: The trap

> Correct, the most important "who" or "what" is the trap. The plant and the prey are mentioned also, but the authors most often mention the trap.

Write "the trap" on the board and have students check what they wrote in their graphic organizer for Section 4.

> **The second part of get the gist is to write the most important thing about the "who" or "what." What important information did you write down about the trap in this section?**

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: catches only about three bugs before it dies and falls off, can open and close only about seven times

> **Now we can turn our ideas into our gist statement. Write a gist statement on your graphic organizer that includes the important information you noted about the trap. Remember that your gist statement should be a short but complete sentence.**

Provide time for students to write. Circulate and provide support as needed.

> **I wrote, "The trap opens only a few times and can catch few bugs before dying." Who has something similar to me?**

Call on a few students to share.

> **Great! We might have written our statements a little differently, but as long as they tell us the "who" or "what" and the important information, all of our answers are OK! Let's check our gist statements next.**

Read and discuss the following questions.

> **Does our gist statement name the most important "who" or "what" in the text?**
>
> **Does our gist statement include the most important information about the "who" or "what?"**
>
> **Is our gist statement a short, complete sentence of around 10 words?**

WRAP UP THE LESSON

We have come up with four gist statements to help us better understand the most important content in the passage. Let's reread them.

Gist 1: The Venus flytrap eats insects because it doesn't get a lot of nutrients from soil.

Gist 2: The trap has leaves that close on big insects.

Gist 3: The Venus flytrap takes 5–12 days to squeeze insects tightly to dissolve their insides.

Gist 4: The trap opens only a few times and can catch few bugs before dying.

Now we can use the gist statements to help us answer the culminating question.

ANSWER THE CULMINATING QUESTION

At the beginning of this lesson, I asked: How has the Venus flytrap developed specifically for its surroundings? We now have all the pieces we need to answer this question, but we have to think about the best way to put these pieces together so that our answer makes sense. Look at your gist statements and turn to your shoulder partner and discuss how the Venus flytrap has developed specifically for its surroundings.

Provide time for students to discuss. Ask probing questions such as the following as needed to help students answer the question.

- How does the Venus flytrap get nutrients?
- What is special about the trap that helps the plant survive?
- Why does it have to survive this way?

OK, who wants to share their answer to our culminating question, "How has the Venus flytrap developed specifically for its surroundings?"

Answer: The Venus flytrap developed to trap and eat insects for nutrients. This is important because the Venus flytrap grows in poor soil.

Yes! The Venus flytrap developed to trap and eat insects for nutrients. This is important because the Venus flytrap grows in poor soil.

SPRINGBOARD IMAGES

Photos by Daniel Frese from Pexels and by Taryn Elliott from Pexels

nutrients

Substances that plants, animals, and people need to live and grow

RELATED WORDS:

foods, nutrition

EXAMPLE USAGE:

Some soil is low in nutrients.

EXAMPLE:

Soil can provide plants nitrogen, oxygen, and iron.

NONEXAMPLE:

Yellow dye #5 is in some foods, but it is not a nutrient.

TURN AND TALK:

What are your favorite things to eat? What nutrients are in your favorite things to eat?

Photos by Klaus Nielsen from Pexels and by pixabay from Pexels

THE VENUS FLYTRAP

SECTION 1

The Venus flytrap is an insect-eating plant that lives mostly on the East Coast. Found primarily in swampy parts of the United States, like North and South Carolina, the Venus flytrap has colorful pink and green hues. Like most other plants, Venus flytraps get some **nutrients** from the soil, but since swampy areas tend to have soil that is nutrient-poor, it is hard for the plant to get nutrients from there. As a result, the flytrap has evolved to not only rely on the soil to survive. The Venus flytrap is a carnivorous plant because it catches insects and eats them to get the **nutrients** that it can't get from the soil.

SECTION 2

The Venus flytrap has leaves that open to catch prey and then snap shut once it's ready to eat. On the inside of each leaf there are short, stiff hairs called trigger hairs. When an insect touches one of the three trigger hairs on either side of the leaf twice in a row, it signals to the flytrap that dinner is here. The leaves then snap shut, trapping the insect inside. Of course, some insects are able to escape, but many don't. And if they try and struggle to get out, the trap closes even tighter! The trap doesn't close all the way, though. It stays open for a few seconds, so smaller insects that might be trapped inside with the main meal can crawl out. Venus flytraps don't like to eat small insects because they don't provide a lot of nutritional value. If it's not an insect that is trapped, rather a nut or a stone, the trap will open after about 12 hours and spit it out. The inside of a flytrap has fingerlike tentacles that help keep the insect from escaping. If you fold your hands together and lace your fingers on the inside, you'll get an idea of what the trap looks like.

SECTION 3

In order to digest or eat the insect, the flytrap must squeeze its prey very tightly, as digestive juices dissolve the inside of the insect. At the end of this process, which takes anywhere from 5 to 12 days, the trap opens up again, and either rain or wind will carry the insect's remaining exoskeleton away. If the flytrap has caught an insect that is too big, and, say, the legs of the bug are sticking out of the trap, the digestion process might not happen the way it should. The trap will grow mold and once that happens, it will continue to get sicker and sicker, with the trap eventually turning black and falling off.

SECTION 4

The exact amount of time it takes for the trap to open back up again depends on a variety of factors. These factors include the size of the insect, temperature, how old the trap is, and how many times the plant has gone through this process. In fact, the trap can only catch about three of its prey before it turns black, dies, and falls off. The trap can only open and close about seven times; that is why it is important to not go around touching the trap in order to get them to close. So if you ever see one, don't tease it!

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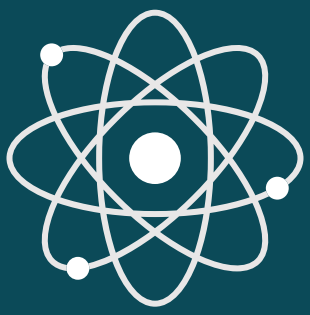


SCIENCE

Get the Gist With *Fake It 'til You Make It*

PURPOSE	Teach and practice how to get the gist of a passage
TOTAL TIME	40–45 minutes
MATERIALS	• Copy of *Fake It 'til You Make It* to show on document camera or equivalent device • Copy of *Fake It 'til You Make It* for each student • Copy of get the gist cue card for each student • Copy of get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• imitate
CRITICAL READING (30 MINUTES): ***FAKE IT 'TIL YOU MAKE IT***	• Teach students how to get the gist using the selected text. • Students will identify a gist statement for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Note Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> Imitation is when an animal looks or acts like another plant or animal. Imitation helps protect animals from their predators, but they can also enable predators to attract their prey. If you have ever worn a costume, then you were imitating someone or something else by looking like them. What is a costume you have worn?

Discuss briefly as a group or with partners.

Show Students the Springboard Images

> Animals need protection for various reasons. Sometimes they are trying to avoid being eaten by another animal.

Show Image 1.

> Here is a picture of a treehopper insect. Notice how you can see six legs, one of its eyes, and its wings. We can guess, from its legs and wings, that the treehopper can fly and walk.

Show Image 2.

> Now, let's look at another picture. Believe it or not, this is the same treehopper! Turn to your partner. Share two ways the treehopper has changed from the first image to this one, and come up with a hypothesis or educated guess as to why it might have changed its appearance in these ways.

Provide time for students to discuss and ask a couple of groups to share.

> Insects and other animals can look different based on what is happening in their environment. Today, we're going to learn about why some insects or other animals may need to camouflage themselves by imitating their environment.

ESSENTIAL WORDS

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "imitate." Everyone say "imitate."
>
> [Student name], will you please read the definition of "imitate"?

Student reads: "To behave in a similar way to or copy someone or something else."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

> The first image shows a daughter imitating her mother. Notice she is making her body similar to her mother's. The second image shows a chameleon changing colors to imitate the leaves around it. Some animals can imitate their surroundings to hide.

RELATED WORDS

> Some words that are related to "imitate" are "mimic" and "resemble." If you mimic someone, then you are imitating that person. If something imitates another thing, then those two things resemble each other.

EXAMPLE USAGE

> Here is the word used in a sentence: The young girl tried to imitate her favorite baseball player's swing.

EXAMPLE

An example of imitation is when younger siblings copy their older brothers and sisters when learning how to behave.

NONEXAMPLE

A nonexample of imitation is a younger sibling doing the opposite of their older brothers and sisters.

TURN AND TALK

Turn to your partner and discuss what kind of clothes you like and if you try to imitate the way someone you admire dresses. Why or why not?

CRITICAL READING OF TEXT

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

We now will read a passage called *Fake It 'til You Make It*. It's about how and why insects and other animals use imitation in the wild.

By the end of reading, I want you to be able to answer our culminating question: ***Why do insects and other animals use imitation in their environments?*** The culminating question helps us remember the big picture information we learned from reading this text.

Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we will learn today.

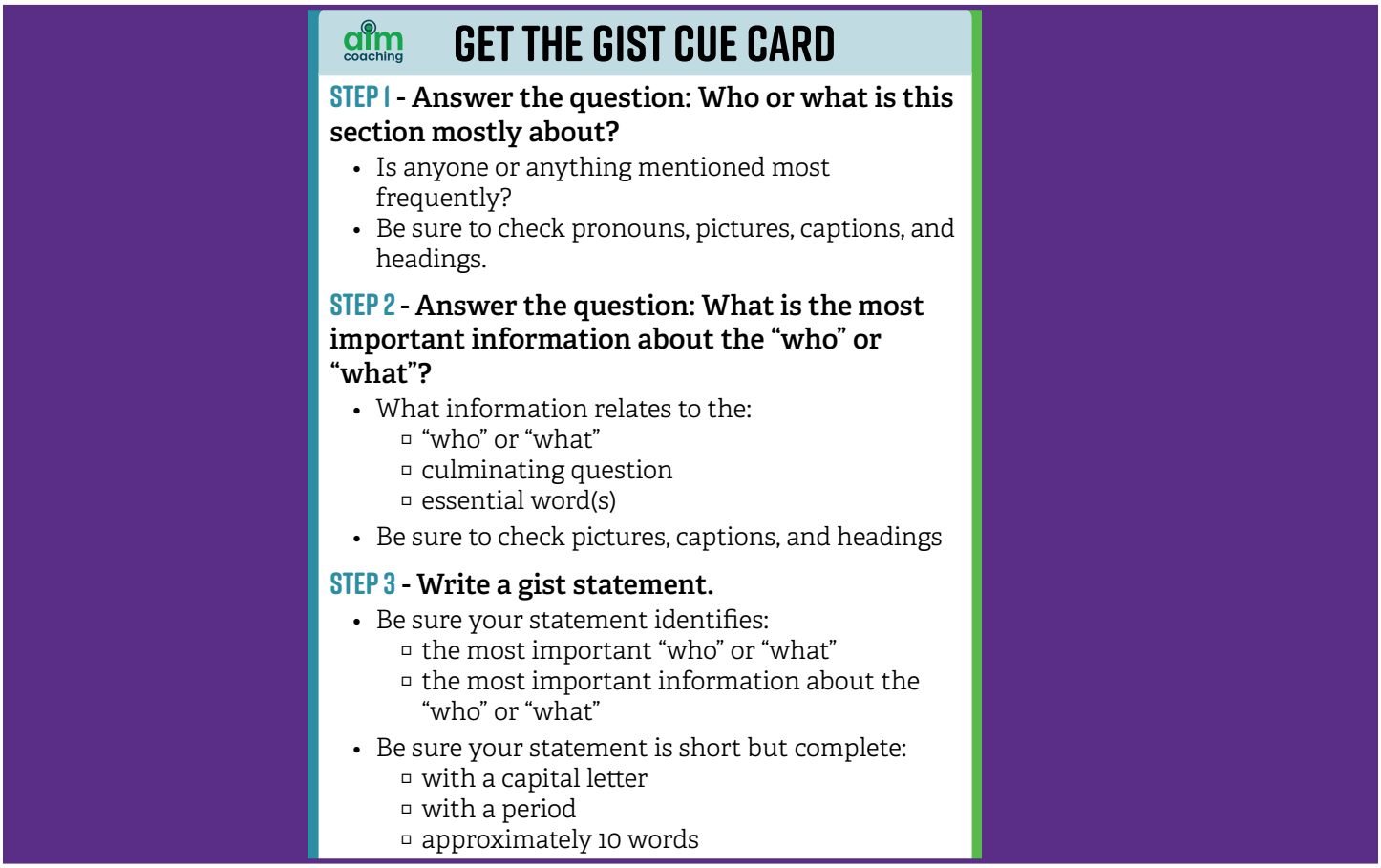
INTRODUCE THE GET THE GIST STRATEGY

Today you will learn a new way to find the main idea of a paragraph or section of text. This strategy is called get the gist. You will be able to use this strategy to make sure you understand what you read and to remember

the most important ideas. We'll be able to use these ideas to help us answer our culminating question at the end of the lesson.

As we read, we will stop periodically to get the gist. Remember, this means that we'll use this strategy to identify the main idea of each section of text. Get the gist helps you to determine the most important ideas about what you read. First, you identify the most important "who" or "what" in the section. Then, you identify the most important information about the "who" or "what." Finally, you write or say a short, complete sentence containing that information. This sentence is called a gist statement.

Look at your get the gist cue card. It has the steps on it.



The first step is to identify who or what the section of text is mostly about.

Underneath the first step are two pointers you can use if it's hard to figure out who or what the section is mostly about. The first pointer is to see if there is anyone or anything mentioned frequently in the text. The second point is to pay attention to pronouns, pictures, captions, and headings.

These might give you hints. Remember that a pronoun is a word that takes the place of a noun, like "she," "he," "him," "it," and "they."

Then, in the second step, we'll identify the most important information about the "who" or "what."

Sometimes this is hard to narrow down, so you can use the two following pointers to help you. The first is to see what information in the text relates to the "who" or "what," the culminating question, or the essential word. The second pointer is to remember to check pronouns, pictures, captions, and headings.

I'll show you what this looks like as we read the first section of *Fake It 'til You Make It*.

MODEL GET THE GIST WITH SECTION 1

Let's get started! I will read the first paragraph and then identify the gist.

Read section 1 aloud slowly.

There is a lot of information in this paragraph. Let's do the first step of get the gist. Look at your cue card and read Step 1 with me: "Who or what is this section mostly about?"

Let's see if we can figure it out together. I will start with the first pointer: "Is anyone or anything mentioned frequently?" Let's see.

I will circle the subject of this paragraph. Sometimes the title gives us a clue about what the subject is. The title is *Fake It 'til You Make It* so that gives me a hint that the subject of this may not be a "who" but instead a "what." I'm going to check in the paragraph to see how our subject is related to this title.

Model circling each time the mimic octopus is mentioned in the first section. As you circle, demonstrate thinking aloud as you note the references to the mimic octopus. Note pronouns as well and point out how they refer to the mimic octopus.

A marked-up passage might look like this:

In nature, pretending to be something that you are not can be the difference between life and death. Meet two amazing animal mimics.
It's a jellyfish! Wait, it's a sea snake. No, it's a lionfish. Actually, it's a two-foot-long octopus **impersonating** all of those creatures! This remarkable animal is aptly named the mimic octopus. In a flash, this shape-shifter can contort its body and change color to appear to be a venomous lion fish one moment, then a poisonous jellyfish. Or it can look like a toxic flatfish at first, then a menacing crab just minutes later. Animals can mask their identities in a number of ways. *Camouflage* helps a creature hide and not be seen, but *mimicry* allows it to appear to be something else altogether.

I think the most important "what" is the mimic octopus. The mimic octopus is mentioned most frequently, even though sometimes it is referred to by a pronoun. Notice that there were many examples of the mimic octopus imitating something else.

Write "mimic octopus" on the board. Have students copy this on their graphic organizer for Section 1.

Let's go back to our cue card and do the second step. Read the second step with me: "What is the most important information about the "who" or "what"?

I'm going to use the first gist pointer to help me. It says to pay attention to information that relates to the "who" or "what." In this case, that's the mimic octopus. I will make a list of the important information in this paragraph about the mimic octopus.

Write essential information on the board and have students copy.

Sample answers: imitates other animals, changes shape and color quickly, mimics or appears as something else instead of using camouflage or hiding

Now that I have all of the important information written down, it's time to write a gist statement. The gist statement is a sentence that states what the main idea is. It needs to be a short, complete sentence—around 10 words—so that we don't include a lot of unnecessary details.

Based on my notes, I know that the mimic octopus can imitate other animals quickly and that it does this instead of using camouflage.

I need to put this important information in a shorter sentence—the gist statement. So, I'm going to write the following.

Write: "The mimic octopus imitates other animals by changing its shape and color." Have students copy this on their graphic organizer for Section 1.

Let's check our gist statement.

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement tell the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 2

Now it's your turn to practice with me so that we can get the gist together. Remember this means you're identifying the main idea. We will use the same cue card I just used. Who can tell me the first step of get the gist?

Answer: Identify who or what is the section is mostly about

That's right! Remember you can use our gist pointers to help if you need. What is the first gist pointer?

Answer: Ask if anything or anyone is mentioned most frequently

That's right. The first gist pointer reminds us to look for frequently mentioned people or things. What is the second gist pointer?

Answer: Check pronouns, pictures, captions, and headings

Correct! The second gist pointer reminds us to keep an eye out for pronouns, pictures, captions, and headings.

Let's get started! I'll read this section aloud and you can follow along. Remember to circle people or things mentioned frequently and to keep an eye out for important pronouns, pictures, captions, and headings. Let's

see if you can figure out the subject of this section and determine what it is mostly about while I read.

Read Section 2 aloud slowly.

Alright! Now it is your turn to take a few minutes and go back to the passage to see if you can determine who or what it is mostly about. We'll come back together and discuss our answers once people are finished.

Allow students time to work through the passage.

It's time to see who or what you think this section is mostly about. Who can raise their hand and tell me who or what they think this section is mostly about?

Answer: The mimic octopus

That's right! In this section, the author talks about the mimic octopus more than anything else.

Write "mimic octopus" on the board. Have students add this to Section 2 of their graphic organizer.

Who can tell me what the second part of get the gist asks us to do?

Answer: Write the most important thing about the "who" or "what."

That's right, Let's go back to our cue card. Who can read the get the gist pointers for the second step aloud for us?

Call on one student to read.

Great! Now you and your partner will make a list of the important information in this section about the mimic octopus. Turn and talk to your partner and write the important information that relates to the "who" or "what," the culminating question, or the essential word.

Remember that the second gist pointer suggests we check pronouns, pictures, captions, and headings.

Give students time to talk to their partners and list important information about the mimic octopus.

> Alright, let's come back together and see if we can list all of the important information about the mimic octopus in this section. Who can tell me one of the important things that they wrote down?

Write ideas on the board as students share.

Sample answers: ability to shift shape, eight arms, can identify predators and change shape

> Great! Now let's come up with our gist statement. Remember we want to keep the gist statement short—around 10 words. Turn to your partner and tell them what you think the most important information about the mimic octopus is.

Have a few students share their thoughts with the class.

> I agree, I think the most important information about the mimic octopus is that it can change its shape when it senses that danger is near. That is what I'm going to write down, but in fewer words.

Write: "The mimic octopus can change its shape when in danger." Have students write this gist statement on their graphic organizer for Section 2.

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement tell the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 3

> Let's practice again with the next section. I'll read the section aloud and you can follow along. Remember that our first step is to figure out who or what this section is mostly about. Following the gist pointers, we will circle things or people mentioned frequently. We also will identify important pronouns, pictures, captions, and headings.

Read Section 3 aloud slowly.

> Alright! Now it is your turn to find out what this section mostly about. As you read, remember to use the gist pointers and to circle the things that are frequently mentioned. We'll come back together and discuss our answers once people are finished.

Give students time to figure out who or what the section is mostly about.

> Who can tell me who or what they think this section is mostly about and why?

Answer: The treehopper

> Correct, the most important "who" or "what" is the treehopper.

Write "treehopper" on the board. Have students check their graphic organizers for Section 3.

> Alright, now we are on the second part of get the gist. Who can remind us of what we need to do now?

Answer: Write the most important thing about the "who" or "what"

> That's right. We need to write the most important thing about the "who" or "what." The first gist pointer reminds us to pay attention to information that relates to the "who" or "what." In this case, that is the treehopper. So, now, you are going to make a list of the important information in this section about the treehopper.

Allot students time to list important information about the "who" or "what."

> Who wants to share some of the important information about the treehopper that they wrote down?

Call on a few students to share ideas and write them on the board.

Sample answers: can shift into many shapes, has many species, can imitate dangerous items to scare predators

> Great work! Now that we have our important information written down, we need to determine what the gist is. Turn to your partner and tell them what

you think the most important information about the treehopper is.

Have a few students share their thoughts with the class and provide feedback as needed.

Answer: Different species of treehopper can imitate different things to scare predators.

I agree! I think the most important information about the treehopper in this section is that different species of it can imitate different things in order to scare predators. This is what I'm going to write down—just in fewer words.

Write: "The treehopper can shift shape when in danger." Have students write this gist statement on their graphic organizer for Section 3.

Let's check our gist statement.

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement tell the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

WRAP UP THE LESSON

We have come up with three gist statements to help us better understand the most important content in the passage. Let's reread them.

Gist 1: The mimic octopus imitates other animals by changing its shape and color.

Gist 2: The mimic octopus can change its shape when in danger.

Gist 3: The treehopper can shift shape when in danger.

Now we can use the gist statements to help us answer the culminating question.

ANSWER THE CULMINATING QUESTION

> **At the beginning of this lesson, I asked: Why do insects and other animals use imitation in their environments? We now have all the pieces we need to answer this question, but we have to think about the best way to put these pieces together so that our answer makes sense. Look at your gist statements and turn to your shoulder partner and discuss why insects and other animals use imitation in their environments.**

Provide time for students to discuss. Ask probing questions such as the following as needed to help students answer the question.

- What were the two animals we learned about?
- Why did the mimic octopus or treehopper imitate something else?
- What happened right before the octopus or treehopper shifted shape?

> **OK, who wants to share their answer to our culminating question, "Why do insects and other animals use imitation in their environments?"**

Answer: Insects and other animals may use imitation when they need to protect themselves from danger, such as predators, in their environments. Different insects and animals take different shapes depending on their environment.

SPRINGBOARD IMAGES

Photos by J. J. Gouin from Shutterstock and by Vinicius R. Rouza from Shutterstock

imitate

To behave in a similar way to or copy someone or something else

RELATED WORDS:

mimic, resemble

EXAMPLE USAGE:

The young boy tried to imitate his favorite baseball player's swing.

EXAMPLE:

Younger siblings often imitate their older brothers and sisters to learn how to behave.

NONEXAMPLE:

Although the term model is used for people and things, a model does not imitate.

TURN AND TALK:

What kinds of clothes do you like? Would you say that you try to imitate someone's style that you admire? Why or why not?

Photos by fizkes from Shutterstock and by Andronos Haris from Shutterstock

FAKE IT 'TIL YOU MAKE IT!

SECTION 1

In nature, pretending to be something that you are not can be the difference between life and death. Meet two amazing animal mimics.
It's a jellyfish! Wait, it's a sea snake. No, it's a lionfish. Actually, it's a two-foot-long octopus **impersonating** all of those creatures! This remarkable animal is aptly named the mimic octopus. In a flash, this shape-shifter can contort its body and change color to appear to be a venomous lion fish one moment, then a poisonous jellyfish. Or it can look like a toxic flatfish at first, then a menacing crab just minutes later. Animals can mask their identities in a number of ways. *Camouflage* helps a creature hide and not be seen, but *mimicry* allows it to appear to be something else altogether.

SECTION 2

The Quick-Change-Artist Octopus
The mimic octopus, discovered in 1998, is the first animal known to have *dynamic mimicry*—the ability to shape-shift between a variety of different animal **imitations** instead of just one. Why? It's all about survival. For the mimic octopus, like most animals in the wild, danger lurks in every direction. This eight-armed cephalopod feeds in wide open spaces without many places to hide, and lots of predators would happily gobble it up. That's why being able to morph into other shapes, colors, and textures is a key defense for this extremely vulnerable creature. When the mimic octopus senses a predator, such as a damselfish, it immediately tucks its body under two tentacles, which become striped and stretch in opposite directions. The arms wiggle and tremble like a deadly seasnake—frightening the damselfish and sending it zipping away.

This talented impersonator can identify specific predators and, in an instant, contort its body shape, change color, and transform from a delicious octopus into that predator's most feared enemy, bluffing long enough for it to make a speedy getaway.

SECTION 3

Another Impersonator: The Tricky Treehopper
The mimic octopus is not the animal kingdom's only successful impersonator. Consider treehoppers. These insects live on trees and have developed a fascinating way to keep predators at bay: certain species sprout growths, called helmets, from their bodies. The helmets are lightweight, strong, and detachable in a pinch. Depending on the species of treehopper, the helmets can look like anything from water droplets to leaves, or from twigs or thorns to poisonous seeds. Whatever their shape, these helmets enable the insect to resemble part of a plant. Other species of treehoppers mimic wasps or venom-spraying ants. There are even treehoppers that spend their lifetime looking like a pile of caterpillar or bird poop. All these disguises have one goal in mind: to appear to be anything other than a yummy meal.

The species of treehopper with the scariest disguise may be the one that looks like an ant suffering from a fungus. While fungi may not inspire fear in most predators, *this* one does. Called the Zombie Fungus, its claim to fame is that it creeps into the ant's brain and controls its mind—directing the ant to chomp down on a leaf, then paralyzing it. The fungus uses

SECTION 3 (CONTINUED)

the ant's body as food to grow. For obvious reasons, other insects want nothing to do with that fungus! Clearly, the treehopper's defense works—it makes predators steer clear.

In nature, where the stakes are eat-or-be-eaten, being a skilled pretender can be a lifesaver. But while many animals are good at the art of **imitation**, the treehopper and mimic octopus are unquestionable masters of mimicry!

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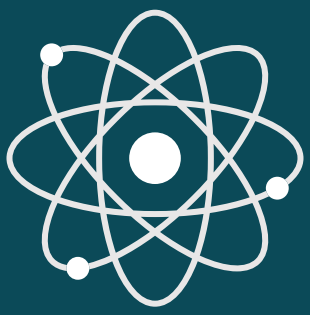


SCIENCE

Review Get the Gist With *What is Orion?*

PURPOSE	Practice how to get the gist of a passage with teacher support
TOTAL TIME	40–45 minutes
MATERIALS	• Copy of *What is Orion?* to show on document camera or equivalent device • Copy of *What is Orion?* for each student • Copy of get the gist cue card for each student • Copy of get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• module
CRITICAL READING (30 MINUTES): ***WHAT IS ORION?***	• Students will practice how to get the gist using the selected text. • Students will identify the gist for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Note Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> You may already know some about space travel. You may know that humans have walked on the Moon and now there is a rover on Mars. The technology used to launch spaceships into space has evolved, or improved over time, and people are exploring further into space than ever before. Take two minutes to free write on why you think scientists are interested in exploring space.

Give students time to write.

Show Students the Springboard Image

Show Image 1.

> NASA, the National Aeronautics and Space Administration, has been studying space and sending people into space for many years. They have developed a lot of technology to get people into space and home again safely. I will show you examples of this technology and how it has evolved over time. Here is the Saturn V rocket launch for the Apollo II mission that took astronauts to the moon over 50 years ago!

Show Image 2.

> Let's now look at a more modern space launch system. This is the Delta IV-Heavy rocket used today. Turn to your partner and discuss what is different about this rocket from the earlier Saturn V rocket? Why do you think NASA made those changes?

Give students time to discuss and ask a couple of groups to share.

> Today, we will learn about a new spacecraft, Orion, which will use a lot of new technology to carry humans to Mars and back home.

ESSENTIAL WORDS

≤5 MINUTES

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "module." Everyone say "module."
>
> [Student name], will you please read the definition of "module"?

Student reads: "A self-contained unit of a spacecraft."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

This illustration shows a spacecraft module. This is the Apollo 11 Command Module that carried astronauts to the moon more than 50 years ago and got them back home safely.

RELATED WORDS

> Some words that are related to *module* are *capsule* and *spacecraft*. Modules are part of most spacecraft.

EXAMPLE USAGE

> Here is the word used in a sentence: Orion is composed of the service module, the crew module (where the astronauts live), and the launch abort system that protects the crew module in an emergency.

EXAMPLE

An example of a module is in the picture. Here you see a spacecraft that consists of three modules.

NONEXAMPLE

A nonexample of a module is this picture of a space shuttle. Why is this a nonexample?

TURN AND TALK

Now turn to your partner and discuss whether you would want to travel to space in a spacecraft module. Why or why not?

Provide time for partners to discuss.

CRITICAL READING OF TEXT

30 MINUTES

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

We now will read a passage titled *What is Orion?* It's about a new space module that will use a lot of technology to carry astronauts to Mars and back home again.

By the end of the reading, I want you to be able to answer our culminating question: ***What technology will Orion use to send astronauts into deep space and home again?*** The culminating question will help us remember the big picture information we'll learn from reading this text.

Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we are going to review today.

Repeat the culminating question and provide time for students to write.

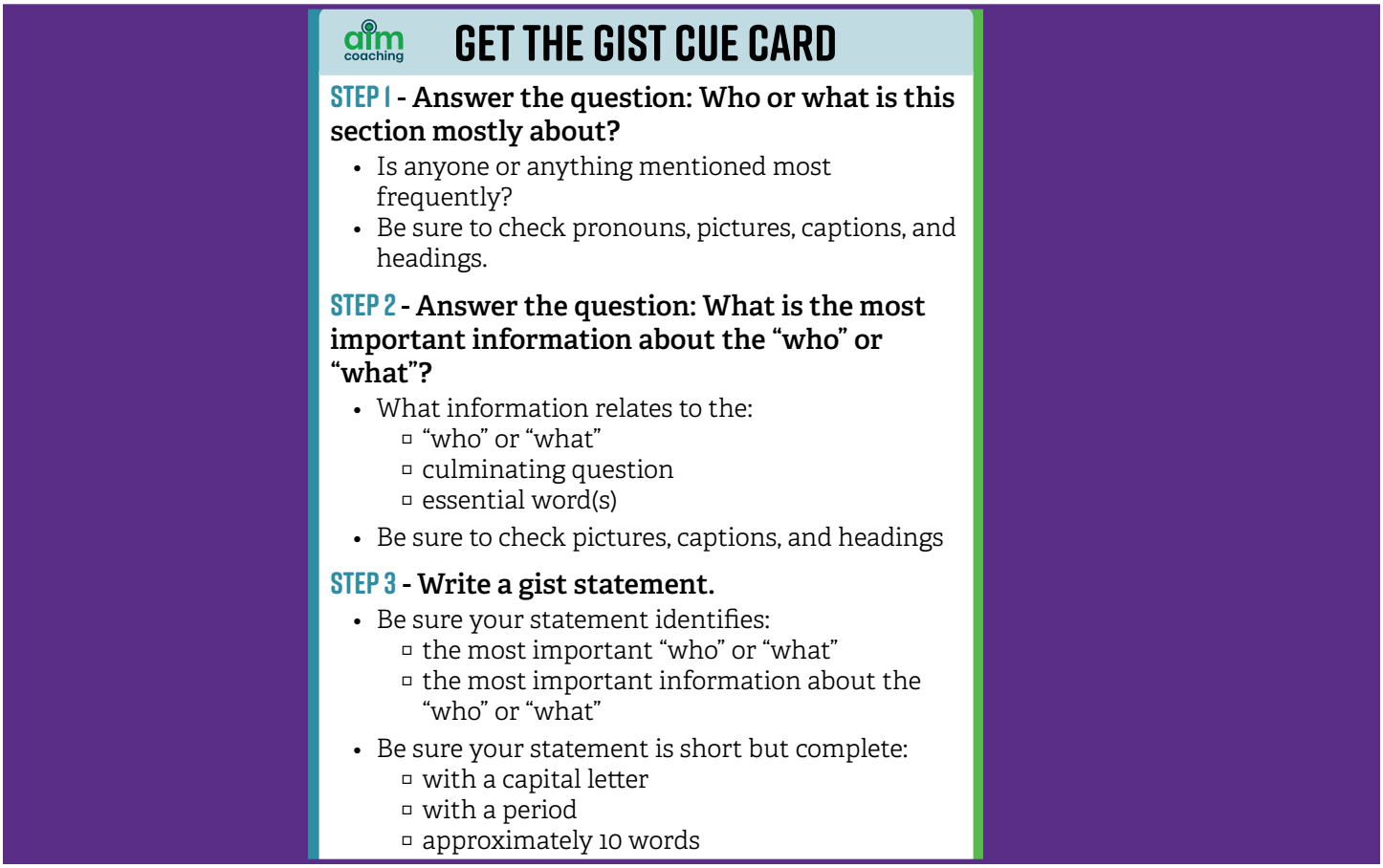
REVIEW THE GET THE GIST STRATEGY

Let's review how to get the gist. We always use the same steps to get the gist.

Don't forget that you can look at the cue card if you need help remembering the steps of the get the gist strategy or would like to review the pointers for each step.

Let's look at our cue cards and read together the first step of the get the gist strategy.

Everyone reads the first step aloud together.



Who can tell me what a pronoun is? What does it replace? What are some pronouns we might see in this passage?

Allow students time to respond to the whole class or to their partner to demonstrate that they understand what a pronoun is. Provide feedback for any misunderstandings.

Now let's read together the second step of the get the gist strategy.

Everyone reads the second step aloud together.

Sometimes this is hard to narrow down. Remember that you can use the following two gist pointers to help you.

The first one is to ask what information relates to the "who" or "what," the culminating question, or the essential word. The second one is to check the pictures, captions, and headings.

Let's work together through the first section of *What is Orion?*

MODEL GET THE GIST WITH SECTION 1

Let's get started. I will read the first section aloud and I want you to look for the things or the people that are mentioned the most frequently.

Read the first section aloud slowly.

There is a lot of information in this section. Let's do the first step of get the gist and see if we can figure out who or what this section is mostly about.

Look at your cue card and read Step 1 with me: "Who or what is this section mostly about?" Let's see if we can figure it out. The first pointer recommends asking if anyone or anything is mentioned frequently in the section. I will go through and circle the subjects the author mentions frequently. But before I do, the second pointer suggests checking the headings. Sometimes the title of the text gives us a clue about what the subject is.

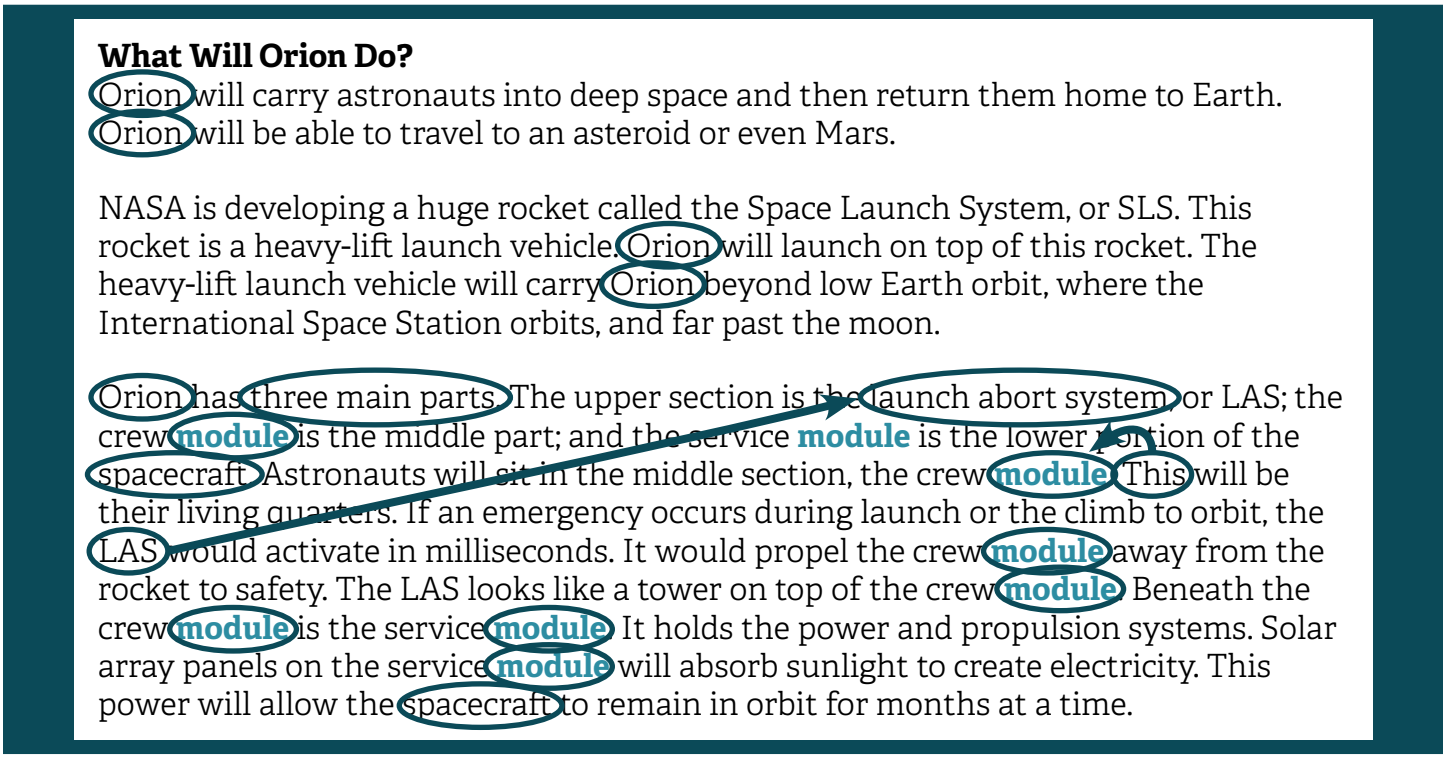
The title is *What is Orion?* That gives me a hint that the subject could be the spacecraft Orion. I'm going to check if that is indeed the subject by seeing how often it is mentioned.

Go back through the first section and model circling each time Orion is mentioned. As you circle, demonstrate thinking aloud by saying things such as the following.

- I see Orion is mentioned right here in the first sentence.
- Right away we learn that Orion is a new NASA spacecraft that will help journey to Mars.
- Orion is not the rocket itself, but will assist on a space mission. It seems to have an important job!

- This paragraph is describing Orion and its many modules. "Module" is mentioned many times and it seems to be an important term. But it is describing different parts of Orion, so I think that Orion is still the most important "what" of this section.

A marked-up passage might look like this:



What Will Orion Do?

Orion will carry astronauts into deep space and then return them home to Earth. Orion will be able to travel to an asteroid or even Mars.

NASA is developing a huge rocket called the Space Launch System, or SLS. This rocket is a heavy-lift launch vehicle. Orion will launch on top of this rocket. The heavy-lift launch vehicle will carry Orion beyond low Earth orbit, where the International Space Station orbits, and far past the moon.

Orion has three main parts. The upper section is the launch abort system, or LAS; the crew **module** is the middle part; and the service **module** is the lower portion of the spacecraft. Astronauts will sit in the middle section, the crew **module**. This will be their living quarters. If an emergency occurs during launch or the climb to orbit, the LAS would activate in milliseconds. It would propel the crew **module** away from the rocket to safety. The LAS looks like a tower on top of the crew **module**. Beneath the crew **module** is the service **module**. It holds the power and propulsion systems. Solar array panels on the service **module** will absorb sunlight to create electricity. This power will allow the spacecraft to remain in orbit for months at a time.

Write "Orion" on the board. Have students write this in their graphic organizer for Section 1.

> Let's do the second step of get the gist and figure out "What is the most important information about the 'who' or 'what'?"
>
> I'm going to use the first pointer to help me. It says to pay attention to information that relates to the "who" or "what." In this case, that's the spacecraft Orion. I will make a list of the important information in this section about Orion. I will also keep the essential question in mind: What technology will Orion use to send astronauts into deep space and home again?

Write the essential information on the board and have students copy. Demonstrate thinking about by saying things such as the following.

- The author says NASA is making a rocket that will launch Orion from Earth into space. I am going to jot that down. I don't have to write a complete sentence for this part. These are just my notes. Write "Rocket will launch Orion into space."

- As I go back and skim the passage, I also see that the author mentions that Orion has three main parts. The author calls these parts "modules." Since I know "module" is our essential word, I am going to write it down in my notes as it seems important.
- I am also thinking about our culminating question: What technology will Orion use to send astronauts into deep space and home again? I see the launch abort system will keep astronauts safe and the solar panels on the service module will create electricity that will allow astronauts to remain in space.

Possible answers: rocket will launch into space, has three modules, launch abort system will keep astronauts safe, solar panels allow astronauts to remain in space

> Now that I have all of the important information written down, it's time to write a gist statement. The gist statement is a sentence that states what the main idea is. It needs to be a short, complete sentence—around 10 words—so we don't include a lot of unnecessary details.
>
> Based on my notes, I know that Orion has three modules with a launch abort system and solar panels to keep astronauts in space safely. I need to put this important information in a shorter statement—the gist statement.

Write "Orion has three modules that will keep astronauts safe in space." Have students copy this on their graphic organizer for Section 1.

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement tell the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 2

> Now it's your turn to practice with me so that we can get the gist together. Remember this means you're identifying the main idea. As I read, think about who or what is mentioned a lot. Who can tell me the first step of get the gist?

Answer: To identify who or what the section is mostly about

> That's right! I'll read the next section aloud and you can follow along to figure out who or what it is about. Circle who or what is mentioned most often. I'm going to do the same and then we'll compare our papers after we finish this section.

Read Section 2 aloud slowly.

> Now, let's figure out who or what this section is mostly about. Raise your hand if you have an idea.

Possible answers: spacecraft, Orion, technology

> That's right. This section mentions Orion and spacecraft, which are related as Orion is a new kind of spacecraft. Orion is the most important "what" of this section. Technology and other things relate to our most important "what," but they aren't as important as the spacecraft Orion.

Write "Orion" on the board. Have students add this to Section 2 of their graphic organizer.

> Who can tell me what the second part of get the gist asks us to do?

Answer: To write the most important thing about the "who" or "what"

> That's right. Let's go back to our cue card. Who can read the get the gist pointers for the second step aloud for us?

Call on one student to read.

> Great! Now you and your partner will use your gist pointers to make a list of the important information in this section about Orion. Turn and talk to your partner and write the important information from this section that relates to the "who" or "what," the culminating question, or the essential word.

Give students time to talk to their partners and list important information about Orion.

> Let's come back together and list all of the important information about Orion in this section. Who can tell me one of the important things that they wrote down?

Write ideas on the board as students share.

Possible answers: technology evolved from earlier missions such as Apollo; technology includes parachutes, computers, life-support systems, propulsion systems, and heat shields; designed to keep astronauts safe

Write: Orion was designed with new technology that will keep astronauts safe.

> **Let's check our gist statement.**

Read and discuss the following questions.

> **Does our gist statement name the most important "who" or "what" in the text?**
>
> **Does our gist statement tell the most important information about the "who" or "what?"**
>
> **Is our gist statement a short, complete sentence of around 10 words?**

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH SECTION 3

> **Now you will try on your own. You're going to read the next section. Use your cue card to help you figure out the most important "who" or "what" and the most important information about that "who" or "what." Remember to write down the essential information in your graphic organizer and to think about the answer to our culminating question! Right now you only need to fill out the "who" or "what" and most important information sections of your graphic organizer. Remember, you should be working in Section 3.**

Circulate and provide support as needed.

> **Now, let's discuss who or what the section is about. Raise your hand if you have an idea.**

Possible answers: spacecraft, space shuttle, it, orbit, high speed

> **That's right! The most important "what" is the space shuttle.**

Write "space shuttle" on the board. Have students check their graphic organizers for Section 3.

> The second part of get the gist is to write the most important thing about the "who" or "what." What important information did you write down about the space shuttle in this section?

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: flew many missions, helped NASA learn about living and working in space, cannot stay in space for more than two weeks, cannot safely return from deep space

Have students check and revise the important information in their graphic organizers. If you notice that students are struggling to identify important information, you can have them do a turn-and-talk to share important information with their partner.

> Now we can turn our ideas into our gist statement. Write a gist statement on your graphic organizer that includes the important information you noted about the space shuttle. Remember that your gist statement should be a short but complete sentence.

Provide students time to write. Circulate and provide support as needed.

> Who wants to share their gist statement with the class?

Call on a few students to share. Write your gist statement on the board so students can check what they wrote and make changes if needed: "The space shuttle was not designed for deep space missions."

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement tell the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH SECTION

> You will read the next section, "Orion's First Flight," on your own. Use your cue card to help you figure out the most important "who" or "what" and

> the most important information about that "who" or "what." Remember to write down the essential information in your graphic organizer and to think about the answer to our culminating question! Right now you only need to fill out the "who" or "what" and most important information sections of your graphic organizer. Remember, you should be working in Section 4.

Circulate and provide support as needed.

> Now, let's discuss who or what the section is about. Raise your hand if you have an idea.

Possible answer: spacecraft, module, it, test vehicle, Orion

Write "Orion" on the board and have students check what they wrote in their graphic organizer for Section 4.

> The second part of get the gist is to write the most important thing about the "who" or "what." What important information did you notice about Orion in this section?

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: Orion's test flight was without a crew; new technology kept Orion safe; the abort launch system and heat shield worked

Have students check and revise the important information in their graphic organizers. If you notice that students are struggling to identify important information, you can have them do a turn-and-talk to share important information with their partner.

> Now we can turn our ideas into our gist statement. Write a gist statement on your graphic organizer that includes the important information you noted about Orion. Remember that your hist statement should be a short but complete sentence.

Provide students time to write. Circulate and provide support as needed.

> Who wants to share their gist statement with the class?

Call on a few students to share. Write your gist statement on the board so students can check what they wrote and make changes if needed: "Orion's technology worked and kept it safe on a test flight."

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement tell the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH SECTION 5

There is one more section of this text, "What's Next for Orion?" You'll again read on your own. Use your cue card to help you figure out the most important "who" or "what" and the most important information about that "who" or "what." Remember to write down the essential information in your graphic organizer and to think about the answer to our culminating question! Right now you only need to fill out the "who" or "what" and most important information sections of your graphic organizer. Remember, you should be working in Section 5.

Circulate and provide support as needed.

Now, let's discuss who or what the section is about. Raise your hand if you have an idea.

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: spacecraft, Orion

That's right! In this section, "spacecraft" refers to Orion, so that seems the most important.

Write "Orion" on the board and have students check what they wrote in the graphic organizer for Section 5.

The second part of get the gist is to write the most important thing about the "who" or "what." What important information did you write down about Orion in this section?

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: will make two exploration missions, will carry astronauts to an asteroid, will carry astronauts to Mars

Now we can turn our ideas into our gist statement. Write a gist statement on your graphic organizer that includes the important information you noted about Orion. Remember that your gist statement should be a short but complete sentence.

Provide students time to write. Circulate and provide support as needed.

Who wants to share their gist statement with the class?

Call on a few students to share. Write your gist statement on the board so students can check what they wrote and make changes if needed: "Orion will make two more test flights before carrying astronauts to Mars."

Remember our statements might be a little different but a good gist statement will have three key pieces.

Have students check their gist statement using the following three questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement include the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

WRAP UP THE LESSON

We have come up with five gist statements to help us better understand the most important content in the passage. Let's reread them.

Gist 1: Orion has three modules that will keep astronauts safe in space.

Gist 2: Orion was designed with new technology that will keep astronauts safe.

Gist 3: The space shuttle was not designed for deep space missions.

Gist 4: Orion's technology worked and kept it safe on a test flight.

Gist 5: Orion will make two more test flights before carrying astronauts to Mars.

Now we can use the gist statements to help us answer the culminating question.

ANSWER THE CULMINATING QUESTION

At the beginning of this lesson, I asked: What technology will Orion use to send astronauts into deep space and home again? We have all the pieces we need to answer this question, but we have to think about the best way to put these pieces together so our answer makes sense. Look at your gist statements and turn to your shoulder partner and discuss what technology Orion will used to send astronauts into deep space and home again.

Provide time for students to discuss. Ask probing questions such as the following as needed to help students answer the question.

- What technology is on Orion?
- What is necessary get astronauts safely to Mars and home again?
- What are the three main sections of Orion?
- What dangers do astronauts face going into deep space?
- Why doesn't NASA still use the space shuttle?

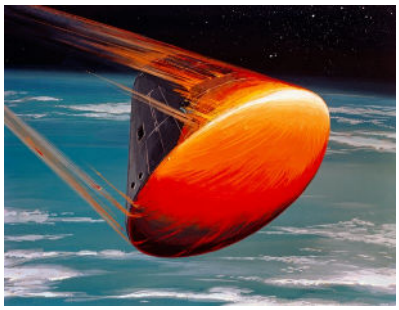
Answer: Orion has three main modules that will keep astronauts safe in deep space. They include the launch abort system (LAS) and the service module, which has solar array panels to create electricity. Orion also has a new heat shield and updated parachutes, along with modern computers, electronics, life-support systems, and propulsion systems.

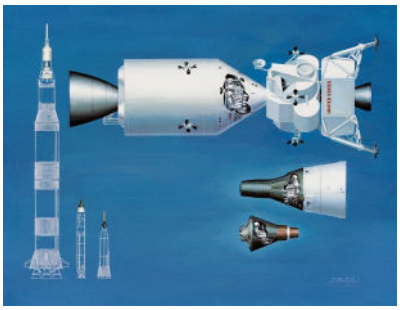
SPRINGBOARD IMAGES

Photos by NASA via Wikimedia and by the U.S. Air Force via Wikimedia

module

A self-contained unit of a spacecraft





RELATED WORDS:

capsule, spacecraft

EXAMPLE USAGE:

Orion is composed of the service module, the crew module (where the astronauts live), and the launch abort system that protects the crew module in an emergency.

EXAMPLE:

An example of a module is in this picture. Here you see a spacecraft that consists of three modules.

NONEXAMPLE:

A nonexample of a module is this picture of a space shuttle.

TURN AND TALK:

Now turn to your partner and discuss whether you would want to travel to space in a spacecraft module. Why or why not?

Images by North American Rockwell via Wikimedia; NASA/Davis Paul Meltzer via Wikimedia; and NASA via Wikimedia

WHAT IS ORION?

NASA's Orion spacecraft flew around Earth two times on a test flight

SECTION 1

Orion ("o-rie-un") is a new NASA spacecraft for astronauts. The spacecraft will play an important part in NASA's journey to Mars. Orion will carry astronauts farther into the solar system than ever before.

What Will Orion Do?

Orion will carry astronauts into deep space and then return them home to Earth. Orion will be able to travel to an asteroid or even Mars.

NASA is developing a huge rocket called the Space Launch System, or SLS. This rocket is a heavy-lift launch vehicle. Orion will launch on top of this rocket. The heavy-lift launch vehicle will carry Orion beyond low Earth orbit, where the International Space Station orbits, and far past the moon.

Orion has three main parts. The upper section is the launch abort system, or LAS; the crew **module** is the middle part; and the service **module** is the lower portion of the spacecraft. Astronauts will sit in the middle section, the crew **module**. This will be their living quarters. If an emergency occurs during launch or the climb to orbit, the LAS would activate in milliseconds. It would propel the crew **module** away from the rocket to safety. The LAS looks like a tower on top of the crew **module**. Beneath the crew **module** is the service **module**. It holds the power and propulsion systems. Solar array panels on the service **module** will absorb sunlight to create electricity. This power will allow the spacecraft to remain in orbit for months at a time.

SECTION 2

How Was Orion Designed?

NASA uses new technology and lessons learned from other missions to build new spacecraft. The Orion spacecraft is similar to NASA's Apollo capsule. Apollo was the space program that carried astronauts to the moon in the 1960s and 1970s.The shape of Orion looks like the Apollo capsule, but the new vehicle is bigger. Instead of the three-person Apollo crew, Orion will carry up to six astronauts.

SECTION 2 (CONTINUED)

When returning from deep space, a spacecraft re-enters Earth's atmosphere at a very high speed with high temperatures. A new heat shield will keep the astronauts safe as the crew **module** returns home. Orion will land in the ocean when it returns with its crew. NASA used lessons learned from Apollo and space shuttle parachutes to design the new Orion parachutes. The updated parachutes will help Orion land safely in water as the vehicle returns from deep space. Orion will use modern technology in many other areas, such as computers, electronics, life-support systems, and propulsion systems.

Orion is made of three main sections. From the left: (1) The service module fuels and propels the spacecraft; (2)the crew module is home to up to six astronauts; and (3) the Launch Abort System jettisons away after Orion reaches orbit.

SECTION 3

Why Doesn't NASA Use the Space Shuttle?

The space shuttle was an amazing spacecraft that served NASA for 30 years. From 1981–2011, the space shuttle flew 135 missions. The shuttle carried satellites to orbit; transported parts, cargo, and crew to build the International Space Station; and helped NASA learn about living and working in space.

However, the space shuttle was not designed to travel beyond low Earth orbit. And it could not stay in space for much more than two weeks at a time. When a spacecraft returns from a deep space mission, it will return at high speeds. The space shuttle was not built to resist the high temperatures of a high-speed return.

SECTION 4

Orion's First Flight

Before a spacecraft can fly on a mission, NASA must test it to make sure that it will do the job well and work safely. So Orion had its first flight test on Dec. 5, 2014—without a crew. Launched from Florida on a rocket called a Delta IV (4) Heavy, the test vehicle flew two orbits around Earth. The flight lasted 4.5 hours. Orion reached an altitude of 3,600 miles above Earth (15 times higher than the International Space Station). The test vehicle hit speeds of 20,000 mph and temperatures approaching 4,000 degrees Fahrenheit as it entered Earth's atmosphere. The test vehicle splashed down in the Pacific Ocean near California.

This first flight tested many parts of Orion. NASA tested Orion's computers, systems, and sensors. The launch abort system and the fairings, which covered the service **module**, fell away from the spacecraft as planned. The spacecraft passed through high levels of harmful radiation. But shielding protected Orion, so the radiation did not have a negative effect on the spacecraft systems. When Orion re-entered Earth's atmosphere, it traveled at 20,000 mph. The fast-moving spacecraft pushed away and heated the air particles that surrounded

SECTION 4 (CONTINUED)

it. The temperature around the spacecraft reached 4,000 degrees Fahrenheit. The heat shield withstood the temperatures that were almost twice as hot as molten lava. And NASA tested large parachutes that successfully slowed Orion down when it returned to Earth at high speeds.

SECTION 5

What's Next for Orion?

The flight test of the Orion spacecraft was an important step in NASA's journey to Mars. When the new SLS rocket is finished, NASA will test Orion with it. No crew will ride on this flight either. This mission is called Exploration Mission-1 and will last about 25 days. Orion will make a large orbit around the moon. The spacecraft will go farther into space than people have traveled before. After Orion is tested on this mission, it will soon be time for the spacecraft to transport humans. Exploration Mission-2 will travel the same path as Exploration Mission-1, but this time with a crew! Then, in the 2020s, Orion will carry astronauts to an asteroid. In the 2030s, NASA's goal is for Orion to carry the first human explorers to Mars, the Red Planet!

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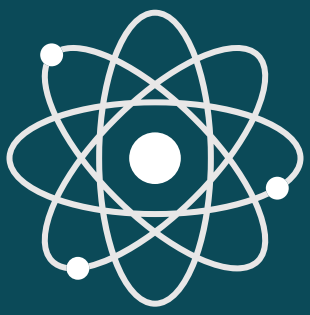


SCIENCE

Review Get the Gist With *Can Imitating Be Lifesaving?*

PURPOSE	Practice how to get the gist of a passage with teacher support
TOTAL TIME	40–45 minutes
MATERIALS	• Copy of *Can Imitating Be Lifesaving?* to show on document camera or equivalent device • Copy of *Can Imitating Be Lifesaving?* for each student • Copy of the get the gist cue card for each student • Copy of get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• inspiration
CRITICAL READING (30 MINUTES): ***CAN IMITATING BE LIFESAVING?***	• Students will practice how to get the gist using the selected text. • Students will identify the gist for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Note Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> Inspiration can be all around us. Maybe you notice things in the world around you and use those things to come up with new ideas. Scientists do the same thing! Sometimes when scientists look at the natural world, they find the inspiration to improve our human environment. Let's watch a short video on ways the animal kingdom has inspired scientists, and then we'll briefly discuss.

Play the following video and discuss: https://www.youtube.com/watch?v=BgLEkbh3QtA

Show Students the Springboard Images

Show Image 1.

> One inspiration from the natural world for some scientists was the lotus leaf. A lotus is a plant that grows in water, but its leaf looks waterproof. Turn to your partner and describe what you see in the picture below. Of what does this leaf remind you?

Show Image 2.

> Let's now look at another plant. This is a flower from the burdock plant. What do you notice about the flower? Share your partner.

Give students about 30 seconds to discuss, and then ask a couple of groups to share.

> Both of these plants have inspired scientists and engineers. Today, we will learn how scientists have found inspiration from plants and other living things to solve everyday problems.

ESSENTIAL WORDS

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "inspiration." Everyone say "inspiration."
>
> [Student name], will you please read the definition of "inspiration"?

Student reads: "Something that moves someone to act, to create, or to feel emotions."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

> The first image shows one inspiration to scientists from the natural world. Here we see suckers on an octopus' tentacle, which inspired the creation of the suction cup.
>
> The second image shows what it might feel like when you are inspired—it might feel like a light bulb lit up in your brain.

RELATED WORDS

> Some words that are related to "inspiration" are "innovation" and "imagination." For example, someone who is inspired may go on to innovate and make something new.

EXAMPLE USAGE

Here is the word used in a sentence: Scientists and engineers are inventors who are always looking for new inspirations. This means that they are looking for things that make them want to create something new.

EXAMPLE

An example of an inspiration is when a poet sees a beautiful sunset and write a poem about it. What inspired her to write the poem?

NONEXAMPLE

A nonexample of inspiration is a painter going to the Grand Canyon but not making a new painting after the trip because he did not find any inspiration there.

TURN AND TALK

Now turn to your partner and describe two different times you felt inspired, beginning with "One example of an inspiration is when I . . ."

Provide time for partners to talk.

CRITICAL READING OF TEXT

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

We now will read a passage titled *Can Imitating Be Lifesaving?* It's about the different ways that several plants and animals have adapted to their environments. These adaptions have inspired scientists who have then used them to create solutions for human problems.

By the end of the reading, I want you to be able to answer our culminating question: ***How have scientists used the natural world to solve problems in the human environment?*** The culminating question will help us remember the big picture information we'll learn from reading this text.

Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we are going to review today.

Repeat the culminating question and provide time for students to write.

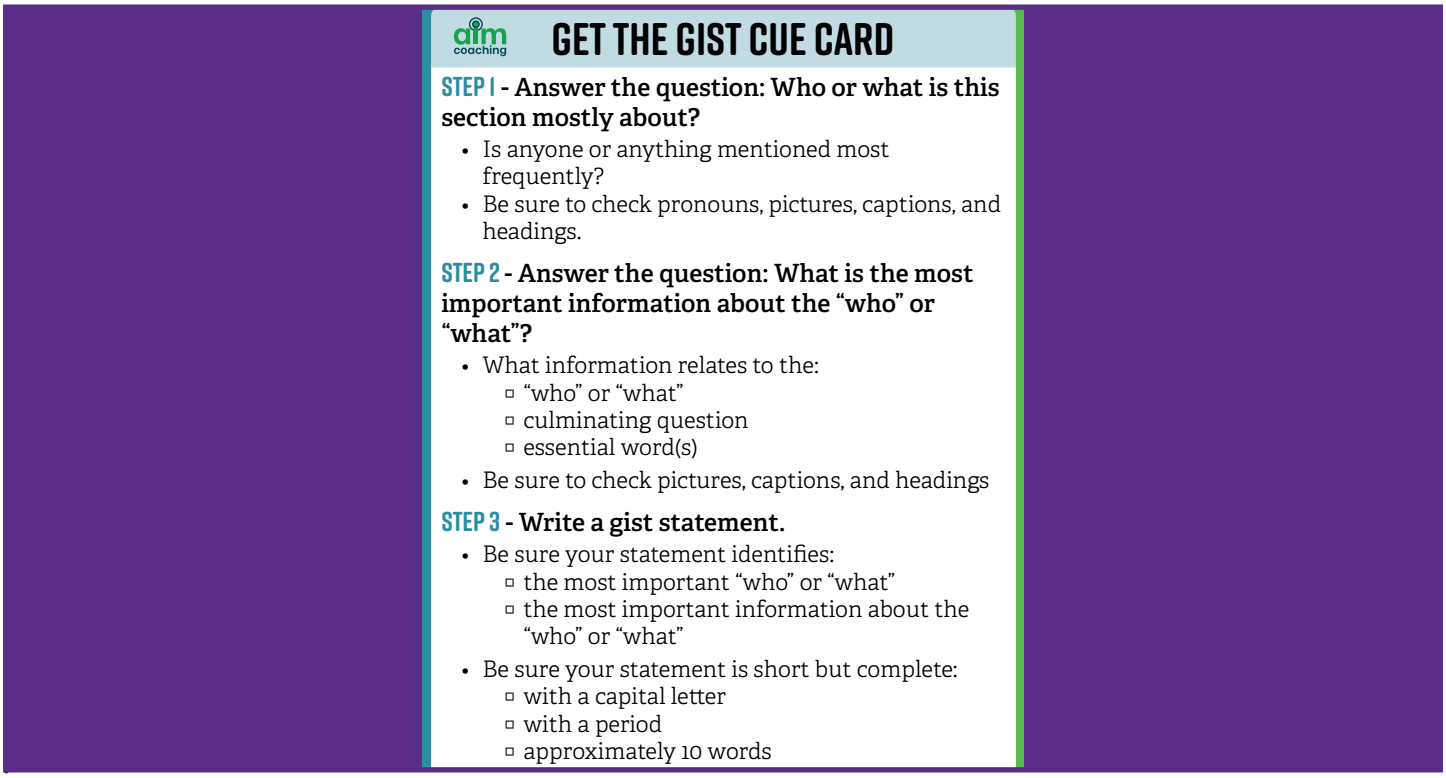
REVIEW THE GET THE GIST STRATEGY

Let's review how to get the gist. We always use the same steps to get the gist.

Don't forget that you can look at the cue card if you need help remembering the steps of the get the gist strategy or would like to review the pointers for each step.

Let's look at our cue cards and read together the first step of the get the gist strategy.

Everyone reads the first step aloud together.



Let's now read together the second step of the get the gist strategy.

Everyone reads the second step aloud together.

Sometimes this is hard to narrow down. Remember that you can use the following two gist pointers to help you.

The first one is to ask what information relates to the "who" or "what," the culminating question, or the essential word. The second one is to check the pictures, captions, and headings.

Let's work together through the first section of *Can Imitating Be Lifesaving?*

MODEL GET THE GIST WITH SECTION 1

Let's get started. I will read the first section aloud and I want you to look for the things or the people that are mentioned the most frequently.

Read the first section aloud slowly.

There is a lot of information in this section. Let's see if we can figure out who or what it is mostly about. Let's see if anything was mentioned a lot. As we go, compare what you think to what I am thinking.

Go back through the paragraph and model circling the things that are mentioned frequently. As you circle, demonstrate thinking aloud by saying things such as the following.

Here we see airplanes and wings mentioned a lot—in every paragraph.

We also see leaf, leaves, and lotus leaf, as well as bugs, insects, and guts mentioned a lot.

Turn to your partner and tell them what you think the most important "who" or "what" is and why.

Give students time to talk to their partners, and then ask a couple of groups to share.

I think planes are the most important "what" of this section and lotus, leaf,

and bugs are going to be important information to note—they are repeated frequently, but planes, airplanes, or airplane wings are mentioned the most frequently.

Write "planes" on the board. Have students copy this on their graphic organizer for Section 1.

Let's do the second step of get the gist and figure out what the most important information about the "who" or "what" is.

I'm going to use the first pointer to help me. It says to pay attention to information that relates to the "who" or "what." In this case, that's planes. I will make a list of the important information in this paragraph about planes.

Write the essential information on the board and have students copy. Demonstrate thinking aloud by saying things such as the following.

- As I go back and skim the passage, I see that the author talks a lot about the problem of bug guts creating drag on airplane wings. The author talks about this a couple of times, and I know that repeated ideas must be important. I'll write that problem down. I don't have to write a complete sentence for this part. These are just my notes.
- I see that planes were mentioned most frequently in this section, but lotus leaf and bugs were also mentioned a lot. I wonder if there is a connection between lotus leaves and bugs and planes. I see here that the author says airplane wings could be more like lotus leaves! I'll jot that down. I also think that this is an example of inspiration, which I know is important because it is our essential word.
- I am also thinking about our culminating question: How have scientists used the natural world to solve problems in the human environment? Here I see that bumps on the lotus leaves repel water which helped scientists create a paint that repels bug guts on airplane wings.

Now that I have all of the important information written down, it's time to write a gist statement. The gist statement is a sentence that states what the main idea is. It needs to be a short, complete sentence—around 10 words—so that we don't include a lot of unnecessary details.

Write "Scientists were inspired by lotus leaves and created a paint that repels bug guts from airplane wings." Have students copy this on their graphic organizer for Section 1.

Let's check our gist statement.

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement tell the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 2

Now it's your turn to practice with me so we can get the gist together. Remember, this means you're identifying the main idea. We will use the same cue card I just used.

Who can tell me the first step of get the gist?

Answer: Identify who or what the section is mostly about

That's right! Remember that you can use our gist pointers to help if you need. What are the two gist pointers?

Answer: Ask if anything or anyone is mentioned most frequently and check pronouns, pictures, captions, and headings

Correct! Let's get started. I'll read this section aloud and you can follow along. Remember to circle people or things mentioned frequently and to keep an eye out for important pronouns, pictures, captions, and headings.

Read Section 2 aloud slowly.

Alright, I will give you just a minute or two to look over the passage and to check what you circled. Remember to use the gist pointers if you need. We'll come back together and discuss our answers once people are finished.

Allow students time to work through the passage.

> It's time to see who or what you all think this section is mostly about. Who can raise their hand and tell me what they think this section is mostly about?

As students share, show your marked-up passage so students who need to circle additional words may follow.

Possible correct answers: inspiration, burdock plant or plant, and seeds or burrs

> That's right. There are a lot of things mentioned in this section but seeds or burrs are mentioned the most frequently, so that should be the most important "who" or "what." Similar to the first section we can assume that the other words—inspiration and burdock plant—are also important and should be noted in the important information.

Write "seeds/burrs" on the board. Have students add this to Section 2 of their graphic organizer.

> Who can tell me what the second part of get the gist asks us to do?

Answer: Write the most important things about the "who" or "what"

> That's right. Let's go back to our cue card. Who can read the get the gist pointers for the second step aloud for us?

Call on one student to read.

> Now you and your partner will use your gist pointers to make a list of the important information in this section about the seeds/burrs. Turn and talk to your partner and write the important information from this section.

Give students time to talk to their partners and list important information about seeds/burrs.

> Alright, let's come back together and see if we can list all of the important information about the seeds/burrs in this section. Who can tell me one of the important things that they wrote down?

Write ideas on the board as students share.

Possible answers: come from the burdock plant, covered with hook-shaped spikes that fasten to animal fur, were the inspiration for Velcro

> Great! Now let's write our gist statement. We want to keep it short—around 10 words. Turn to your partner and tell them what you think the most important information about the seeds is from Section 2.

Have a few students share their thoughts with the class.

Write "Scientists were inspired by the burr's hook-shaped spikes to make Velcro" on the board.

Have students write this gist statement on their graphic organizer for Section 2.

> Let's check our gist statement.

Read and discuss the following questions.

> Does our gist statement name the most important "who" or "what" in the text?
>
> Does our gist statement include the most important information about the "who" or "what?"
>
> Is our gist statement a short, complete sentence of around 10 words?

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH SECTION 3

> Now we will practice again how to get the gist. Remember this means you're identifying the main idea. We will use the same cue card I just used. Who can tell me the first step of get the gist?

Answer: Identify who or what the section is mostly about

> That is right! And we can use our gist pointers if we need. What are our gist pointers?

Answer: Ask if anything or anyone is mentioned most frequently and check pronouns, pictures, captions, and headings

> Let's get started! I'll read this section aloud and you can follow along.

Read section 3 aloud slowly.

> **Alright! Now it is your turn to find out what this section is mostly about. As you look back at the text, remember to use the gist pointers and to circle the things that are frequently mentioned. We'll come back together and discuss our answers once people are finished.**

Give students time to figure out who or what the section is mostly about.

> **Who can tell me what they think this section is mostly about and why? Raise your hand if you have an idea.**

Possible answers: birds, kingfisher, and bullet trains. Students may notice that "streamlined" and "sleek" are synonyms in this paragraph. "Kingfisher" is repeated most, while bullet trains and their sonic booms are the problem and help us answer the culminating question.

Write "kingfisher" on the board. Have students check their graphic organizers for Section 3.

> **Alright, now we are on the second part of get the gist. Who can remind us of what we need to do now?**

Answer: Write the most important thing about the "who" or "what"

> **What important information did you notice about the kingfisher and how it inspired scientists?**

Allot students time to list important information about the "who" or "what."

> **Who wants to share some of the important information about the kingfisher that they wrote down?**

Call on a few students to share ideas and write them on the board.

Sample answers: have pointy beaks, do not make a splash when they dive into water, inspired scientists to redesigned bullet trains, sonic booms went away when trains were streamlined

> **Great! Now we can turn that information into a gist statement. Remember we want to keep it around 10 words. Turn to your partner and tell them what you think the most important information about the kingfisher is.**

Have a few students share their thoughts with the class and provide feedback as needed.

Answer: When scientists redesigned bullet trains to be streamlined like kingfishers, the problem of sonic booms went away.

I agree! Make sure your gist statement looks similar to this. It might be a little different, but the general idea should be the same.

Write "When scientists redesigned bullet trains to be streamlined like kingfishers, the problem of sonic booms went away" on the board. Have students write this gist statement on their graphic organizer for Section 3.

Let's check our gist statement.

Read and discuss the following questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement include the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH SECTION 4

Now you will try on your own. You're going read the last section. Use your cue card to help you figure out the most important "who" or "what" and the most important information about that "who" or "what." Remember to write down the essential information in your graphic organizer and to think about the answer to our culminating question! Right now you only need to fill out the "who" or "what" and most important information sections of your graphic organizer. Remember, you should be working in Section 4.

Provide time for students to work. Circulate and provide support as needed.

Now, let's discuss who or what the section is mostly about. Raise your hand if you have an idea.

Have a few students share their thoughts with the class and provide feedback as needed.

Answer: Termites

That's right! The most important "who" or "what" is termites. Even though cool air and related words were actually mentioned most frequently, they

are not the most important. The termites were the inspiration for scientists.

Write "termites" on the board and have students check what they wrote in their graphic organizer for Section 4.

The second part of get the gist is to write the most important thing about the "who" or "what." What important information did you write down about termites in this section?

Have a few students share their thoughts with the class and provide feedback as needed.

Possible answers: inspired new way to cool air indoors, build mounds with openings at the top and vents at the bottom, openings release hot air while vents pull in cool air

Now we can turn our ideas into our gist statement. Write a gist statement on your graphic organizer that includes the important information you noted about termites. Remember that your gist statement should be a short but complete sentence.

Provide students time to write. Circulate and provide support as needed.

Who wants to share their gist statement with the class?

Call on a few students to share. Write your gist statement on the board so students can check what they wrote and make changes if needed: "Termite mounds inspired a new way to create cooler air indoors."

Remember our statements might be a little different but a good gist statement will have three key pieces.

Have students check their gist statement using the following three questions.

Does our gist statement name the most important "who" or "what" in the text?

Does our gist statement include the most important information about the "who" or "what?"

Is our gist statement a short, complete sentence of around 10 words?

WRAP UP THE LESSON

We have come up with four gist statements to help us better understand the most important content in the passage. Let's reread them.

Gist 1: Scientists were inspired by lotus leaves and created a paint that repels bug guts from airplane wings.

Gist 2: Scientists were inspired by the burr's hook-shaped spikes to make Velcro.

Gist 3: When scientists redesigned bullet trains to be streamlined like kingfishers, the problem of sonic booms went away.

Gist 4: Termite mounds inspired a new way to create cooler air indoors.

Now we can use the gist statements to help us answer the culminating question.

ANSWER THE CULMINATING QUESTION

At the beginning of this lesson, I asked: How have scientists used the natural world to solve problems in the human environment? We have all the pieces we need to answer this question, but we have to think about the best way to put these pieces together so that our answer makes sense. Look at your gist statements and turn to your shoulder partner and discuss how scientists have used the natural world to solve problems in the human environment.

Provide time for students to discuss. Ask probing questions such as the following as needed to help students answer the question.

- How were scientists inspired by lotus leaves?
- How were scientists inspired by the burdock plant and its burr seeds?
- How were scientists inspired by kingfishers?
- How were scientists inspired by termites?
- What problem were scientists having with bullet trains?
- What problem were scientists having with airplane wings?
- How were bugs and bug guts impacting airplane travel?

OK, who wants to share their answer to our culminating question, "How have scientists used the natural world to solve problems in the human environment?"

Answer: Scientists were inspired by lotus leaves to create a paint that repels bug guts from airplane wings, by the burr's hook-shaped spikes to create Velcro, by the streamlined beak of the kingfisher to solve the problem of bullet trains creating sonic booms, and by termite mounds to create a new way to cool air indoors.

SPRINGBOARD IMAGES

Photos by Ansel Lee from Pexels and by Pethan from Wikimedia Commons

inspiration

Something that moves someone to act, to create, or to feel emotions

RELATED WORDS:

innovation, *imagination*

EXAMPLE USAGE:

Scientists and engineers are inventors who are always looking for new inspirations.

EXAMPLE:

The poet said her inspiration for the poem was a beautiful sunset she saw.

NONEXAMPLE:

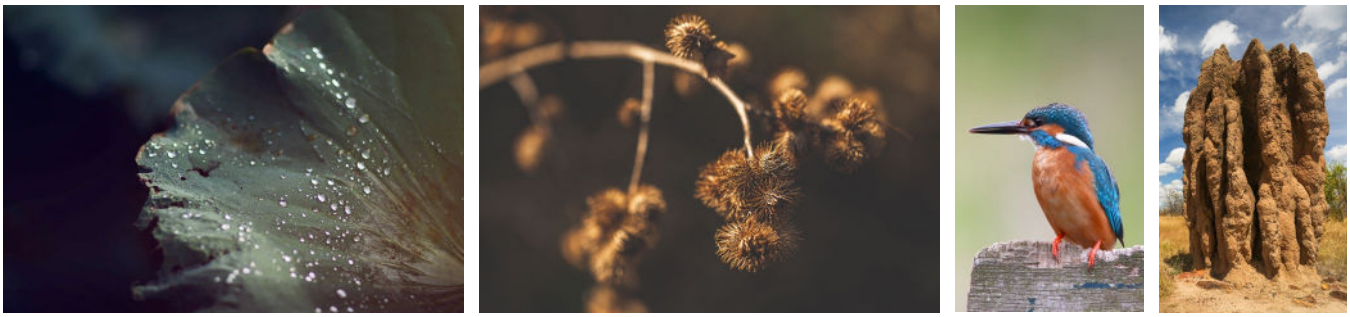
The painter went to the Grand Canyon but did not find inspiration and did not make a new painting after the trip.

TURN AND TALK:

Describe two different examples of times you have felt inspired. Begin with, "One example of an inspiration is when I . . ."

Photo by Lycaon from Wikimedia Commons and illustration by Islahaddow from Wikimedia Commons

CAN IMITATING BE LIFESAVING?



Left to right: beads of water on leaf, a burdock plant; bottom: a kingfisher; a termite mound

By studying how nature works, scientists are solving big problems in engineering and design.

Can lotus leaves make flying safer? Might a termite help us keep our cool? And what do seeds have to do with making tying your shoes simpler? The bigger question under these queries is this: can understanding the way the natural world works help us make a better human environment?

The answer, say scientists, is a definite YES.

Take the problem of commercial airplanes and bug guts. When jets accelerate on the runway prior to lift-off, their enormous metal wings squash any insects in their path, bursting the bugs' exoskeleton. The bugs' internal organs and any chemicals inside then splash along the surface of the plane's wing. Those fluids go quickly from gooey to gluey—and when they stick to the wing, they change the contours of its surface.

That becomes a real drag (literally!). Drag is the force that slows something down. An excess of gummy bug guts creates an irregular surface, causing more drag as the air flows less smoothly over the plane wings. More drag means that engines have to work harder and use more fuel to keep the plane moving forward.

So, if bug guts stick to just about everything, how can airplane wings avoid the buildup? By being more like a lotus leaf! Those leaves have bristly, microscopic bumps along their surface that prevent anything from sticking around. Water that lands on the leaf beads up and rolls off, escorting any grime or slime away with it and leaving the lotus leaf clean. Scientists borrowed this idea, combining the physical structure of the lotus leaf with chemicals to create a "self-cleaning" paint for planes that repels the gooey mess of insect innards. Sticky-wing problem solved!

SECTION 2

Lotus leaves aren't the only plant-based **inspiration** for innovation. Scientists discovered another natural solution by examining the burdock plant. Its prickly seeds, called burrs, are covered with hook-shaped spikes. The burrs firmly fasten to the fur of any passing animal and hitch a ride before being deposited in a different location to sprout. It's a brilliant solution for the plant—and was the **inspiration** for Velcro!

SECTION 3

Could a bird's qualities help bullet trains move more efficiently? Kingfishers, with their pointy beaks, showed how to break the sound barrier without turbulence. When these birds dive in the water, they do not make a splash because their shape is so streamlined. Scientists used this knowledge to solve the problem of bullet trains creating sonic booms inside tunnels. Those bullet trains were redesigned to resemble sleek kingfishers . . . and the problem went away.

SECTION 4

Other human-made structures have creatures to thank for smart design, too. For example, termites gave experts ideas about cooling air indoors. Termites build huge earthen mounds with openings at the top that release warm air and vents along the bottom that pull in cool air. Architects designing a mall in Harare, Zimbabwe, applied those ideas to their project. The result? A cooler, more efficient mall with less need for air-conditioning.

Nature may have many more answers to human problems. For millions of years, living things have evolved on our planet to solve dilemmas and survive. Scientists are only beginning to tap into the potential of these time-tested adaptations.

The next time you have a problem to solve, look around and see if the answer is already right in front of you . . . in nature!

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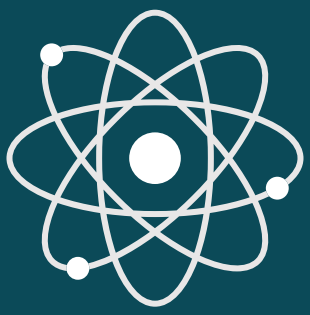

SCIENCE

Partner Reading Routine With *Smart About Medicine*

PURPOSE	Teach and practice the partner reading routine
TOTAL TIME	40–45 minutes
BEFORE YOU BEGIN	• Choose two students who will do a good job modeling the procedure for the class and inform them before class that you will ask them to do so. • Decide how you will partner students during class. At the end of this lesson plan is a document describing different ways to partner students.
MATERIALS	• Copy of *Smart About Medicine* to show on document camera or equivalent device • Copy of *Smart About Medicine* for each student • Copy of partner reading cue card for each student • Optional: copy of get the gist cue card for each student • Optional: copy of get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• interaction

CRITICAL READING (30 MINUTES): ***SMART ABOUT MEDICINE***	• Teach students the partner reading routine using the selected text. • Students will identify the gist statement for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Note Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class with the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> People take medicines for a lot of different reasons. You've likely taken medicine for a cold or a season illness. Turn to your partner and discuss whether you have ever had to take any medicine to help you stay healthy. What do you know about how medicines work?

Give students time to discuss.

Show Students the Springboard Images

Show Image 1.

> Medicines help humans stop the spread of illness as well as prevent diseases from spreading. Have any of you ever gotten a shot before? Often, shots keep us from getting sick. Those shots are called vaccines. Some illnesses have vaccines that prevent the disease from spreading.

Show Image 2.

> Medication can be lifesaving. People who have bad allergic reactions to things like bee stings or certain foods may carry an EpiPen. If they ever have a reaction to something, they use their EpiPen to give themselves a shot of medication. The medication lessens the effects of the reaction and helps the person get healthy again!
>
> Medication can be lifesaving and very helpful, but since it is powerful, it is important to use medication wisely. Today, you are going to read about using medications safely.

ESSENTIAL WORDS

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "interaction." Everyone say "interaction."
>
> [Student name], will you please read the definition of "interaction"?

Student reads: "Communication or direct involvement with someone or something."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

> The image shows an interaction between a clownfish and a sea anemone. The sea anemone gives the clownfish a place to live, and the clownfish gives the sea anemone important nutrients. They are directly involved with each other.

RELATED WORDS

> Some words that are related to *interaction* are *influence, relation,* and *connection*. For example, in order to influence someone or something, you have to interact with them.

EXAMPLE USAGE

Here is the word used in a sentence: Ecology is the science of the interactions among living things and their environment.

EXAMPLE

An example of an interaction is a deer eating the flowers in your neighborhood because the forest where it lived burned down.

NONEXAMPLE

A nonexample of an interaction is watching a news report on television about a forest fire in another place.

TURN AND TALK

Now turn to your partner and discuss different examples of interactions you have had with members of your family.

CRITICAL READING OF TEXT

ESTABLISH PAIRS

We have spent a few weeks learning how to use the get the gist strategy to better understand what we read and to answer questions in a more informed way.

Today, I'll teach you a partner reading procedure so we can read texts a little faster and so all of you will have an opportunity to practice the skills we have learned over the past few weeks.

The first thing we'll do is get into pairs.

Facilitate students getting into pairs. Each pair should have a Partner 1 and a Partner 2.

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

Facilitate students getting into pairs. Each pair should have a Partner 1 and a Partner 2.

> **Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we will learn today.**

Repeat the culminating question and provide time for students to write.

TEACH GET THE GIST WITH PARTNER READING

> **Now that you're in pairs, I'll go over how to answer the culminating question with your partner.**
>
> **First, there are some norms that I want you to keep in mind while you're working in pairs.**

Use your own norms or draw from the following possible norms:

1. Talk quietly. This means that only your partner can hear you.
2. Be respectful to your partner and the others around you.
3. Help your partner whenever needed.
4. Show kindness.

To help us stay on track, we have a partner reading cue card. I will read the partner reading cue card aloud, and you'll follow along.

The first section says "Read the section." So, you will read one section of the text.

I'll say something like, "Ones, you read. Twos, you follow along."

The second section says, "Get the Gist," so this is where you will work together to get the gist. You're going to trade off in this section. So, Partner 1 will say, "Who or what is this section mostly about?" You'll both go back to the passage to figure out who or what it is mostly about.

Remember to look out for important pictures, heading, captions, and pronouns. Circle any of the important headings, captions, and pronouns you see.

Then, Partner 2 will say, "I think this section is mostly about _____. Do you agree?" and the two of you will discuss.

Next, Partner 2 says, "What is the most important idea about the 'who' or 'what'?"

Remember, you can use the two following pointers to help you. The first one is to ask what information relates to the "who" or "what," the culminating question, or the essential word.

The second pointer is to pay attention to pronouns, pictures, captions, and headings. Pronouns might take the place of an important "who" or "what," so a sentence with a pronoun might contain important information. We can always circle pronouns and draw an arrow back to the "who" or "what" the pronoun is replacing. Remember that captions are the lines of text under a picture that describe that picture.

Again, you can go back to the section and annotate it or make a list. Then, Partner 1 says, "I think the most important idea about _____ is ¬_____. Do you agree?" Then you can discuss again.

Then, you start over with the next section of text. First, Partner 2 reads and Partner 1 follows along. Then you get the gist, following the cue card.

MODEL GET THE GIST WITH PARTNER READING WITH SECTION I

I want to show you what this looks like. [Partner 1] and [Partner 2] are going to help me out.

Everyone, get out your passage titled *Smart About Medicine* so you can follow along.

Class, as you watch, I want you to notice what [Partner 2] does while she follows along. She will read along silently and if [Partner 1] gets stuck, [Partner 2] is going to help him out by giving him the word he's struggling to read.

Partner 1 reads the text aloud. Partner 2 follows along and assists as needed.

Great! Now, let's go to the "Get the Gist" section of the cue card. Partner 1, go ahead.

[Partner 1] says, "Who or what is this section mostly about?

> Everyone take a moment to go back and circle the most frequently mentioned "who" or "what." Remember to identify any important headings, captions, pictures, and pronouns.

Give students time to go back and circle.

> OK, [Partner 2], your turn.

Partner 2 says, "I think this section is mostly about medicine. Do you agree?" The partners discuss their responses.

> Let's move to the next section of the cue card. [Partner 2], you will start this time.

Partner 2 says, "What is the most important idea about the 'who' or 'what'?"

> [Partner 1], now it's your turn.

Partner 1 says, "I think the most important idea is that medicine can be helpful and harmful. Do you agree?" Partners discuss their responses.

> Now, I want you to share your gist statement.

The partners share.

> Really nice work. Thanks for helping me model the partner reading procedure.

Sample gist statement: Medicine is helpful, but can be harmful if taken incorrectly.

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH PARTNER READING WITH SECTION 2

> Okay, it's time for you all to try with your partners while I talk you through it.
>
> All Partner 1s raise your hands. You'll read first.
>
> All Partner 2s raise your hands. You'll follow along. Remember to read the text silently and help your partner if they get stuck.

> I'll give you all one minute to read the next section titled "DO take all your antibiotics"

Give students time to read through the section.

> Nice work. Now, I will give you a few minutes to go through the first part of get the gist with your partner. If you finish early, reread the section.

Circulate around the room to assist students and give feedback on their engagement.

While circulating, if you notice that students are stuck, provide guidance such as, "What words do you notice the author repeating? What is related to the culminating question?"

> Great! Now, I will give you two minutes to go through the second part of get the gist with your partner and write a gist statement.

Circulate around the room and assist students or give feedback on their engagement.

Ask two groups to share their gist statements aloud.

Sample gist statement: Always finish taking antibiotics if prescribed them.

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH PARTNER READING WITH SECTION 3

> Let's try this with a new section.
>
> All Partner 1s raise your hands. This time you will follow along.
>
> All Partner 2s raise your hands. This time you will read.
>
> You'll have one minute to read the next section, called "Don't take someone else's medicine."

Give students time to read through the section.

> Nice work. Now, I will give you a few minutes to go through the first part of get the gist with your partner. Switch roles from what you did in the last section. If you found the "who" or "what" last time, find the important information this time. If you found the most important information last time, you'll identify the" who" or "what" this time. If you finish early, reread the section.

Circulate around the room and assist students or give feedback on their engagement.

> **Great! Now you'll have two minutes to go through the second part of get the gist with your partner and write a gist statement.**

Circulate around the room and assist students or give feedback on their engagement.

Ask two groups to share their gist statements aloud.

Sample gist statement: Sharing medicine is dangerous to both you and the other person.

FACILITATE INDEPENDENT PRACTICE WITH REMAINING SECTIONS (SECTIONS 4–7)

Circulate around the room to assist students and provide feedback on engagement and gist statements. If you notice students making the same mistake, feel free to pull the class together for some modeling.

Sample gist statements for each section:

Gist 4: Medicines, even cough and cold medicine, should always be taken in the correct dose.

Gist 5: Medicines don't always mix with each other, or even with grapefruit juice.

Gist 6: It's better to go the doctor than take expired medicines.

Gist 7: Use a medicine measuring cup instead of a spoon to ensure the right dose.

WRAP UP THE LESSON

> **You all did a great job today!**

Tell students two things they did particularly well.

> **The more you practice the partner reading routine, the more comfortable it will become!**
>
> **Turn to your partner and tell them one thing you liked about the routine.**

Give students time to discuss. Ask a group or two to share.

> **Now, turn to your partner and tell them one thing that could be improved the next time we use this procedure.**

Give students time to discuss. Ask a group or two to share.

ANSWER THE CULMINATING QUESTION

> **At the beginning of this lesson, I asked why it is important that we take our medicines correctly. We have all the pieces we need to answer this question, but we have to think about the best way to put these pieces together so our answer makes sense. Look at your gist statements and turn to your shoulder partner and discuss why it is important that we take our medicines correctly.**

Provide students with 1–2 minutes of discussion and prompt students again with the culminating question. Should the turn-and-talk be silent, prompt students with the following questions.

- Can you give medications to your friend?
- How should medication be used?
- What can medication be used to treat or help?

Possible response: While medicines keep us healthy, it is important to take them correctly to avoid causing harm to ourselves and possibly others. This includes taking the right amount, not sharing someone else's medicine, and making sure they are not expired or unable to mix with other things.

SPRINGBOARD IMAGES

Photos by Aashiq rangrej from Shutterstock and by Lenscap Photography from Shutterstock

interaction

Communication or direct involvement with someone or something

RELATED WORDS:

influence, relation, and connection

EXAMPLE USAGE:

Ecology is the science of the interactions among living things and their environment.

EXAMPLE:

A deer eating the flowers in your neighborhood because the forest where it lived burned down.

NONEXAMPLE:

Watching a news report on TV about a forest fire in another place.

TURN AND TALK:

Describe two different examples of interactions you have had with members of your family

Photo by Aastels from Shutterstock

SMART ABOUT MEDICINE

SECTION 1

Check out these dos and don'ts for taking medicine safely.
Did you know that almost one out of three teens think there is nothing wrong with using prescription drugs without a doctor's prescription, according to the Partnership for a Drug-Free America? Medicines can help people fight illnesses and get better faster, and can keep people from getting sick in the first place. But if they aren't taken correctly, medicines may cause more harm than good. Read on to learn more about responsible medicine use.

SECTION 2

DO take all your antibiotics.
Here's a scenario: After three days of taking the medicine your doctor prescribed for strep throat, you feel great. You still have seven days' worth of pills left. Is it OK to stop taking them and shove them to the back of the medicine cabinet until the next time you get sick? Nope! Always finish taking all the *antibiotics* (bacteria-fighting drugs) prescribed by your doctor, even if you start to feel healthy again. "When bacteria are undertreated, they have a chance to multiply," says Dr. Tanya Arora, a pediatrician at Children's Hospital Los Angeles. "You get bacteria that no longer respond to the antibiotic." Some antibiotics don't just get rid of bacteria, Arora adds. Some also help prevent other problems. For instance, strep throat that is not fully treated can lead to rheumatic fever, an illness that can damage the heart.

SECTION 3

Don't take someone else's medicine.
The most common way teens get medications they aren't supposed to be taking is from a friend of a relative, according to the 2008 Monitoring the Future survey. But sharing your medicine, or taking another person's medication, can be dangerous. It's also illegal. "If the drug was not prescribed for you, you don't . . . have your own doctor's knowledge of how the prescription medicine will **interact** with your own body [or] with other medicines you may be taking," says Steve Pasierb, president of the Partnership for a Drug-Free America. That means you could get very sick. Plus, if you take someone else's medicine, that person won't have enough of it. Pharmacists cannot refill a prescription if a medication has been used up before it should have been. That could put the other person's health in danger.

SECTION 4

DO make sure you are taking the correct dose.
Every week, approximately one in 10 kids use some kind of cough and cold medicine, according to experts at Boston University. Cough and cold medicines can be a big help when you're sniffling and sneezing. But because you can buy them without a prescription, many people don't realize just how dangerous those drugs can be if they are misused. While cough medications may have different names, they often have the same or similar ingredients. For example, the ingredient diphenhydramine, which treats coughs, can make you stop breathing if you take too much. "These medications are not meant to take away all your symptoms and make you feel back to normal—they only help a little bit," Arora says. Taking more than you should won't help your symptoms.

SECTION 5

DO find out whether your medicine shouldn't be mixed.
Sometimes, drugs can **interact** with other drugs, foods, or vitamins. For example, iron supplements can keep tetracycline, a common antibiotic, from working. Grapefruit juice affects a number of medicines, such as ones for heart disease and allergies as well as some that fight infections. Certain vitamins and supplements for athletes can have damaging effects on the kidneys and liver. "It is important that your doctor know [what you are taking] so that they avoid prescribing medications that may worsen that damage," says Virginia Cox of the Consumer Healthcare Products Association.

SECTION 6

Don't take expired meds.
Some medicines don't work as well as time passes or if they are kept in high temperatures. Expired medicine may not work as intended. That is why it is better to always go to the doctor rather than try to figure out on your own what you ought to do. "Your self-diagnosis may be wrong, and the prescription medicine you take may have a negative impact on what is truly wrong with you," says Pasierb.

SECTION 7

Measuring Up
You may have heard the expression "Don't judge a book by its cover." Don't judge a spoonful by the spoon, either. Kitchen teaspoons—the kind you eat with—shouldn't be used to take liquid medicines. That's because not all spoons are alike. Spoons can hold anywhere from 4 milliliters of liquid to 10 milliliters, according to a study by doctors in Minnesota. However, the correct amount of liquid in a teaspoon serving is 5 milliliters. Use a medicine measuring cup instead. Then you can be sure it is the right dose.

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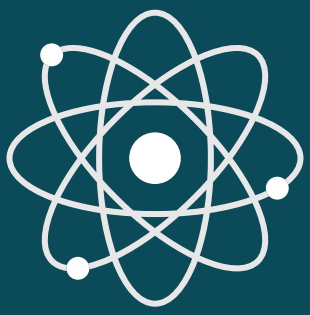


SCIENCE

Partner Reading Routine With *Space Junk*

PURPOSE	Teach and practice the partner reading routine
TOTAL TIME	40–45 minutes
BEFORE YOU BEGIN	• Choose two students who will do a good job modeling the procedure for the class and inform them before class that you will ask them to do so. • Decide how you will partner students during class.
MATERIALS	• Copy of *Space Junk* to show on document camera or equivalent device • Copy of *Space Junk* for each student • Copy of partner reading cue card for each student • Optional: copy of get the gist cue card for each student • Optional: copy of get the gist graphic organizer for each student
COMPREHENSION CANOPY (5 MINUTES OR LESS)	• Introduce topic of text. • Show springboard images and discuss.
ESSENTIAL WORDS (5 MINUTES OR LESS)	• collide

CRITICAL READING (30 MINUTES): ***SPACE JUNK***	• Teach students the partner reading routine using the selected text. • Students will identify the gist for each section of text. • Hold discussion about the culminating question at the end of the lesson, citing text evidence.

Purple text sections include get the gist language and are examples of how teachers might provide additional support to students who need it.

COMPREHENSION CANOPY

≤5 MINUTES

OBJECTIVE

Provide the class with the background information necessary to comprehend the text by introducing the topic of the text and by showing students the springboard images.

INTRODUCE THE TOPIC OF THE TEXT

> We're going to watch a video of small flecks of paint and other debris being released into space during a rocket launch.

Play the following video: https://www.nhm.ac.uk/discover/what-is-space-junk-and-why-is-it-a-problem.html

> The passage we'll read today is titled *Space Junk*. The passage is about the human-made junk in space around Earth and the problems it can cause.

Show Students the Springboard Images

Show Image 1.

> Look at this image of a piece of junk while I read you an excerpt from a poem called *Junkyards* by Julian Lee Rayford:
>
> You take any junkyard
>
> and you will see it filled with
>
> symbols of progress
>
> remarkable things discarded.

Discuss why the junk in this photo is a symbol of progress.

Show Image 2.

> Now, let's look at a piece of junk that is up in space and I'll read the excerpt from the poem *Junkyards* again.

Reread the excerpt above.

Discuss why the junk in this photo is a symbol of progress.

> Today, we will learn what space junk is and the problems it can cause for objects we send into space, such as satellites.

ESSENTIAL WORDS

OBJECTIVE

Provide the class with explicit vocabulary instruction necessary to comprehend the text by using the essential words graphic organizer.

DEFINITION

Display the essential words graphic organizer for all students to see.

> The essential word you will learn today is "collide." Everyone say "collide."
>
> [Student name], will you please read the definition of "collide"?

Student reads: "To crash together."

> Now let's all read that together.

Everyone reads the definition together.

VISUAL REPRESENTATION

> Turn to your partner and discuss how this image matches the definition for "collide."

Provide time for partners to talk.

Possible answer: In the image we see a wave colliding, or crashing, into a cliff.

RELATED WORDS

Some words that are related to “collide” are “clash” and “jar.” When you collide with something you might feel jarred, or shocked.

EXAMPLE USAGE

Here is the word used in a sentence: The two football players collided on the field.

EXAMPLE

An example of a colliding is when two pieces of space junk run into one another.

NONEXAMPLE

A nonexample of colliding is when two pieces of space junk miss each other by a centimeter.

TURN AND TALK

Now turn to your partner and discuss a time you witnessed two objects colliding. What happened?

Provide time for partners to talk.

CRITICAL READING OF TEXT

ESTABLISH PAIRS

We have spent the last few weeks learning to use the get the gist strategy to better understand what we read and to answer questions in a more informed way.

> Today, I'll teach you a partner reading procedure so we can read texts a little faster and so all of you will have an opportunity to practice the skills we have learned over the past few weeks.
>
> The first thing we'll do is get into pairs.

Facilitate students getting into pairs. Each pair should have a Partner 1 and a Partner 2.

INTRODUCE THE TEXT, TOPIC, AND CULMINATING QUESTION

> Now, we're going to read a passage titled *Space Junk*. It's about the challenges caused by junk floating around in space.
>
> The culminating question that we'll answer at the end of the lesson is: ***How might space junk hinder future space missions?***
>
> Write the culminating question on your graphic organizer. The graphic organizer will help us remember the steps we will learn today.

Repeat the culminating question and provide time for students to write.

TEACH GET THE GIST WITH PARTNER READING

> Now that you're in pairs, I'll go over how to answer the culminating question with your partner.
>
> First, there are some norms that I want you to keep in mind while you're working in pairs.

Use your own norms or draw from the following possible norms:

1. Talk quietly. This means that only your partner can hear you.
2. Be respectful to your partner and the others around you.
3. Help your partner whenever needed.
4. Show kindness.

Look at your partner reading cue card. I will read aloud from it and you'll follow along.

The first section says "Read the section." So, you will read one section of the text.

I'll say something like, "Ones, you read. Twos, you follow along."

The second section says, "Get the Gist," so this is where you will work together to get the gist. You're going to trade off in this section. So, Partner 1 will say, "Who or what is this section mostly about?" You'll both go back to the passage to figure out who or what it is mostly about.

Remember to look out for important pictures, heading, captions, and pronouns. Circle any of the important headings, captions, and pronouns you see.

Then, Partner 2 will say, "I think this section is mostly about _____. Do you agree?" and the two of you will discuss.

Next, Partner 2 says, "What is the most important idea about the 'who' or 'what'?"

Remember, you can use the two following pointers to help you. The first one is to ask what information relates to the "who" or "what," the culminating question, or the essential word.

The second pointer is to pay attention to pronouns, pictures, captions, and headings. Pronouns might take the place of an important "who" or "what," so a sentence with a pronoun might contain important information. We can always circle pronouns and draw an arrow back to the "who" or "what" the pronoun is replacing. Remember that captions are the lines of text under a picture that describe that picture.

Again, you can go back to the section and annotate it or make a list. Then, Partner 1 says, "I think the most important idea about _____ is _____. Do you agree?" Then you can discuss again.

Then, you start over with the next section of text. First, Partner 2 reads and Partner 1 follows along. Then you get the gist, following the cue card.

MODEL GET THE GIST WITH PARTNER READING WITH SECTION I

I want to show you what this looks like. [Partner 1] and [Partner 2] are going to help me out.

Everyone, get out your passage titled *Space Junk* so you can follow along.

Class, as you watch, I want you to notice what [Partner 2] does while he follows along. He will read along silently and if [Partner 1] gets stuck, [Partner 2] is going to help him out by giving him the word he's struggling to read.

Partner 1 reads the text aloud. Partner 2 follows along and assists as needed.

Great! Now, let's go to the "Get the Gist" section of the card. [Partner 1], go ahead.

Partner 1 says, "Who or what is this section mostly about?"

When it is hard to figure out the "who or what is this about," we can use our

two gist pointers to help us.

Review pointers or continue.

[Partner 2], your turn.

Partner 2 says, "I think this section is mostly about space junk. Do you agree?" The partners discuss their responses.

Let's move to the next section of the cue card. [Partner 2], you will start this time.

Partner 2 says, "What is the most important idea about the 'who' or 'what'?"

[Partner 1], now it's your turn.

Partner 1 says, "I think the most important idea is that there is a lot of space junk and it's a problem. Do you agree?" The partners discuss their responses.

Now, I want you to share your gist statement.

The partners share.

Really nice work. Thank you for helping me model the partner reading procedure.

FACILITATE GUIDED PRACTICE OF GET THE GIST WITH PARTNER READING WITH SECTION 2

Okay, it's time for you all to try with your partners while I talk you through it.

All Partner 1s raise your hands. You'll read first.

All Partner 2s raise your hands. You'll follow along. Remember to read the text silently and help your partner if they get stuck.

I'll give you all one minute to read the next section, titled "What Is This Junk?"

Give students time to read through the section.

> Nice work. Now, I will give you one minute to go through the first part of get the gist with your partner. If you finish early, reread the section.

Circulate around the room to assist students and give feedback on their engagement.

While circulating, if you notice that students are stuck, provide guidance such as, "What words do you notice the author repeating? Why is it dangerous when objects collide? What does it mean to collide?"

> Great! Now, I will give you two minutes to go through the second part of get the gist with your partner and write a gist statement.

Circulate around the room and assist students or give feedback on their engagement.

Ask two groups to share their gist statements aloud.

FACILITATE INDEPENDENT PRACTICE OF GET THE GIST WITH PARTNER READING WITH SECTION 3

> Let's try this with a new section.
>
> All Partner 1s raise your hands. This time you will follow along.
>
> All Partner 2s raise your hands. This time you will read.
>
> You'll have one minute to read the next section, titled "Cleaning up the Junk."

Give students time to read through the section.

> Nice work. Now, I will give you a few minutes to go through the first part of get the gist with your partner. Switch roles from what you did in the last section. If you found the "who" or "what" last time, find the important information this time. If you found the most important information last time, you'll identify the "who" or "what" this time. If you finish early, reread the section.

Circulate around the room and assist students or give feedback on their engagement.

> Great! Now you'll have two minutes to go through the second part of get the gist with your partner and write a gist statement.

Circulate around the room and assist students or give feedback on their engagement.

Ask two groups to share their gist statements aloud.

WRAP UP THE LESSON

> **You all did a great job today!**

Tell students two things they did particularly well.

> **The more you practice the partner reading routine, the more comfortable it will become!**
>
> **Turn to your partner and tell them one thing you liked about the routine.**

Give students time to discuss. Ask a group or two to share.

> **Now, turn to your partner and tell them one thing that could be improved the next time we use this procedure.**

Give students time to discuss. Ask a group or two to share.

ANSWER THE CULMINATING QUESTION

> **At the beginning of this lesson, I asked: How might space junk hinder future space missions? What do you think based on this reading?**

Pauses for student responses. Should students not respond, facilitate a turn-and-talk.

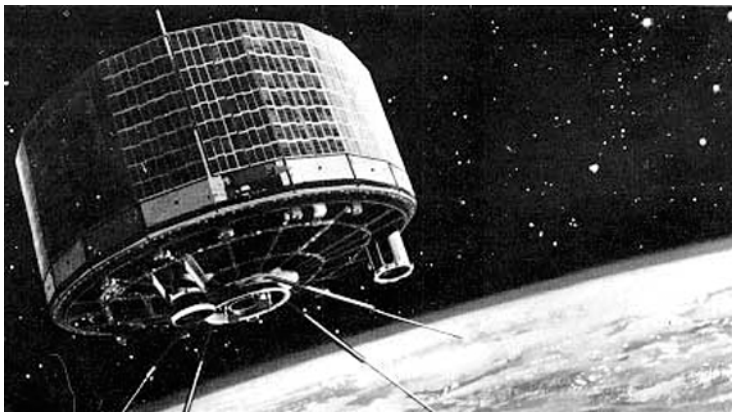
> **We have all the pieces we need to answer this question, but we need think about the best way to put these pieces together so our answer makes sense. Look at your gist statements and turn to your partner and discuss how space junk might hinder future space missions.**

Provide students with 1–2 minutes of discussion and prompt students again with the culminating question. Should the turn-and-talk be silent, prompt students with the following questions:

- What is space junk?
- Do we know how much space junk is out there?
- What are some examples from the text of problems space junk has caused already?
- What if there's too much space junk and we can't safely get a spacecraft through outer space?

Possible response: Space junk might hinder future space missions by making it harder for spacecrafts to travel safely through space. Countries are trying to find ways to remove space junk so that space travel is easier, but sometimes they just end up making more space junk.

SPRINGBOARD IMAGES



Photos by sxdxe from Pexels and by NASA/Glenn Research Center from Wikimedia Commons

collide

To crash together

RELATED WORDS:

clash, jar

EXAMPLE USAGE:

The two football players collided on the field.

EXAMPLE:

When two pieces of space junk run into one another.

NONEXAMPLE:

When two pieces of space junk miss each other by a centimeter.

TURN AND TALK:

Discuss a time you witnessed two objects colliding. What happened?

Photo by Avery Nielsen-Webb from Pexels

SPACE JUNK

SECTION 1

Space Junk in Orbit

Many people know that trash is a big problem on planet Earth. What many people don't know is that trash has become a problem in outer space too. Years of space exploration have left tons of "space junk" in orbit around the planet.

According to *BBC News*, there are more than 22,000 pieces of junk in space around the earth. And these are just the items that we can see from the surface of the earth by telescopes or radars. There are also millions of smaller pieces of junk that we can't see.

SECTION 2

What Is This Junk?

Objects, like bits of old space rockets or satellites, move around the planet at very high speeds, so fast that even a very small piece can break important satellites or become dangerous to people, particularly astronauts. If the tiniest piece of junk crashed into a spacecraft, it could damage the vehicle. That's because the faster an object moves, the greater the impact if the object **collides** with something else.

To make things worse, when two objects in space **collide**, the two objects break into many smaller pieces. This happened in 2009 when a working United States satellite **collided** with a Russian satellite that was no longer functioning. The collision caused the satellites to break into more than 2,000 pieces, increasing the items of space junk.

SECTION 3

Cleaning up the Junk

To help minimize additional space junk, countries around the world have agreed to limit the time their space tools stay in orbit to 25 years. Each tool must be built to fall safely into the earth's atmosphere, or the mass of gases that surround the earth, after that. In the upper parts of the atmosphere, it will burn up.

Many scientists are also proposing different ways to clean up space junk. In England a metal harpoon is being tested that can be fired into space trash, grip the trash, and then pull the space junk into the earth's atmosphere where it would burn up.

The Germans have been planning a space mission with robots that would collect pieces of space trash and bring them back to Earth so that they can be safely destroyed.

In 2007 the Chinese tried to blow up one of its older satellites with a missile. Unfortunately, the explosion only created thousands of smaller pieces, adding junk in space!

"In our opinion the problem is very challenging, and it's quite urgent as well," said Marco Castronuovo, an Italian Space Agency researcher who is working to solve the problem. One

SECTION 3 (CONTINUED)

reason that it's urgent is that countries are sending more and more objects into space. Many of these objects are tools that help people use their cell phones or computers.

"The time to act is now; as we go farther in time, we will need to remove more and more fragments," he says.

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