

### Warm-up

First, before class, prepare the template for a digital word cloud with the word SPACE. Then, start the session by inviting students to write as many words as possible in two minutes connected to the word space. Finally, at the end of two minutes, generate and share the word cloud, noting the words that more students wrote.

### Teaching Tip

#### For Exercise 2

First, create a Kahoot-style game with the statements. Next, have students vote on whether each sentence is fact or fiction. Then, conduct the 'checking' component as a rapid skimming and scanning exercise. Have students scan to identify whether the statements are fact or fiction and read the relevant part of the text aloud. Finally, close the exercise by having students share their scores from the game.

### Differentiation Strategy

#### For Exercise 4

Go to the Differentiation Strategies Bank and adapt this exercise using Strategy 2b.

### Flexi Exercises

(To adjust to students' needs, you can either use or not the activities below)

Exercise 3



### Science

## Why are components of the galaxy important?

01 With a classmate, discuss the questions.

- What science fiction movies have you seen?
- What is the name of our galaxy?
- How many planets are in our Solar System?

02 Read the statements and choose "FA" for fact or "FI" for fiction. Then, read "Feeling Lost in the Cosmos" and check your answers.

- 1. There's just empty space between the stars.  
FA
- 2. The most essential part of the galaxy is the stars.  
FI
- 3. Dark matter is science fiction.  
FI
- 4. We are all made of stardust.  
FA

03 Read the text again and complete the descriptions of the components of the galaxy.

Possible answers

- A black hole is an area with strong gravity that consumes everything that gets close to it.
- Dark matter is the glue that holds everything in place.
- Constellations are groups of stars.
- Meteors and shooting stars are are pieces of flying rock and ice.

### Feeling Lost in the Cosmos

1. There's just space between the stars. When you look up at the stars with binoculars or a telescope, you can see so much more than stars. There are planets, some bright enough to resemble stars; **constellations**, or groups of stars; **stellar dust**, **meteors** and **comets**, bits of flying rocks and ice, and shooting stars, which are not stars, but another type of flying rock that burns brightly as it hits the Earth's atmosphere. On average, 17 shooting stars hit the Earth's atmosphere per day. Besides these, there are also human-built cosmic entities, such as satellites and the International Space Station.

2. The most important part of the galaxy is the stars. The center of the Milky Way, the galaxy in which the Earth resides, is a **black hole** that consumes everything that gets close to it. Stellar dust, gas, and stars tightly packed into the galactic bulge circling near this enormous nothingness can be seen through a telescope.

3. Dark matter is science fiction. In the 1930s, scientists began to postulate why galaxies could rotate more quickly than expected if they were only composed of gas, dust, planets, and stars—the components we can see. They learned that another substance was at work—one that cannot be seen but provides gravity to hold everything in place. That invisible substance is what we now call **dark matter**, which is the majority of the mass in any galaxy.

4. We are all made of stardust. It sounds like a fairy tale, but it's entirely true. Nearly all the elements in our bodies originally were made in an ancient star or an unknown number of ancient stars that generated these elements through nucleosynthesis.

04 Work with a classmate and prepare an argument. Which component of the galaxy is most important? Why?



### Language Structures and Functions Tip

#### For Exercise 5

First, review the form and meaning of first, second, and third conditionals. Include mixed conditionals if appropriate. Then, have students complete the exercise with a classmate. In the report back session, provide or elicit the reasons for the correct answers. Finally, if time allows and you deem necessary, review the grammar point in more detail.

### Teaching Tip

#### For Exercise 7

First, extend the exercise by having students read their arguments aloud in small groups, imagining they are presenting their argument to a group of stakeholders; for example, government officials, community leaders, or average citizens. Then, have each small group choose the strongest argument to share with the whole class. Next, encourage each group to read their chosen argument for the entire class, and invite audience members to ask questions. Close the exercise by eliciting the most compelling points in each argument and asking if students were convinced.

### Differentiation Strategy

#### For Exercise 8

Go to the Differentiation Strategies Bank and adapt this exercise using Strategy 2c.

### Wrap-up

First, close the session by asking students to imagine they are space explorers and have discovered a new element in the galaxy. Then, have them draw the element and present it to a small group. Next, post the drawings around the room or in a digital slide show.

### Flexi Exercises

(To adjust to students' needs, you can either use or not the activities below)

#### Exercise 6

#### 05 Underline the correct option to complete the sentence.

- Provided that stars continue fusing hydrogen in their cores,  
a. they can remain stable for billions of years.  
b. they remained stable for billions of years.
- So long as dark matter remained undetected,  
a. astronomers will continue to explore alternative theories.  
b. astronomers continued to explore alternative theories.
- The galaxy might collapse inward,  
a. if not enough dark matter counteracts gravity.  
b. if not enough dark matter counteracted gravity.
- Supposing the Milky Way were to collide with Andromeda,  
a. the structure of both galaxies will likely be transformed.  
b. the structure of both galaxies would likely be transformed.
- Had astronomers known the full mass of black holes earlier,  
a. they would have revised galaxy models sooner.  
b. they revise galaxy models sooner.
- Unless stars form in certain regions of interstellar gas,  
a. galaxies will struggle to regenerate over time.  
b. galaxies struggle regenerating over time.

#### 06 Categorize the conditional sentences in Exercise 5.

Real conditional: \_\_\_\_\_ 1, 2

Unreal/imaginary conditional: \_\_\_\_\_ 4, 5

Negative conditional: \_\_\_\_\_ 3, 6

#### 07 Write an argument for or against investing in space exploration. Use five different conditionals in your paragraph.

Answers will vary.



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#### 08 With a group, discuss the questions. Then, share your answers with another group.

- Supposing international space agencies could know everything about the galaxy, what would be the most important discovery?
- What financial investment is best? Understanding the galaxy? Or trying to stop climate change?
- Imagine you could live on another planet, provided you didn't take any people with you. Would you go? Why or why not?