



# Why are components of the galaxy important?

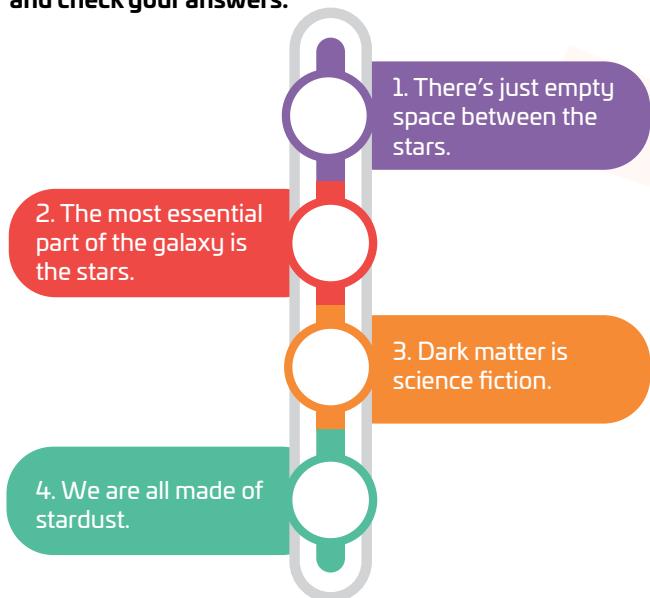


### 01 With a classmate, discuss the questions.

- › 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.



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

1. A black hole is \_\_\_\_\_
2. Dark matter is \_\_\_\_\_
3. Constellations are \_\_\_\_\_
4. Meteors and shooting stars are \_\_\_\_\_

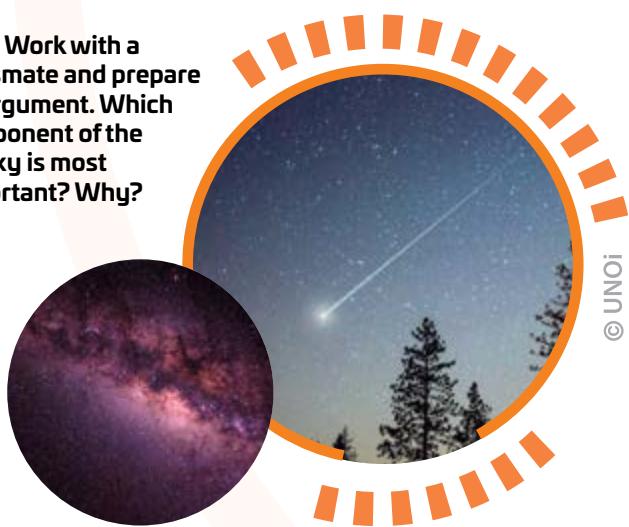
### Feeling Lost in the Cosmos

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?



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**Underline the correct option to complete the sentence.**

1. 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.
2. So long as dark matter remained undetected,
  - a. astronomers will continue to explore alternative theories.
  - b. astronomers continued to explore alternative theories.
3. The galaxy might collapse inward,
  - a. if not enough dark matter counteracts gravity.
  - b. if not enough dark matter counteracted gravity.
4. 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.
5. Had astronomers known the full mass of black holes earlier,
  - a. they would have revised galaxy models sooner.
  - b. they revise galaxy models sooner.
6. 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: \_\_\_\_\_

Unreal/imaginary conditional: \_\_\_\_\_

Negative conditional: \_\_\_\_\_

07

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

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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?