THINKING WITH MY FAMILY AND FRIENDS

Video: Reptile Relatives

Compare-Contrast Nonfiction Text Structure (whole-whole)

In astronomy class, Arun learned that Mars and Earth share many common features. He also learned that NASA scientists are studying Mars, the red planet, through pictures that are captured by the rovers, Opportunity and Sprit, the Phoenix Mars Lander, and the Odyssey, which is orbiting the planet. Intrigued by his teacher's comments, Arun decided to research Mars on his own. He wanted to find more information on Mars and Earth in hopes of discovering some similarities and differences for himself.

Arun went to the library and found an interesting article in a book about Mars and Earth. He also noticed that it's a super example of Whole-Whole Compare-Contrast Nonfiction Text Structure!

Now it's **Your Turn!** Read ***Planetary Playing Field: Mars vs. Earth.*** Create a *Think Aloud* and Graphic Organizer with your family or friends.

Then compare your group's thinking with **Arun's Think Aloud and Graphic Organizer**.

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Before You Read:

Think about what you may already know about Mars and Earth. Think about what you've learned about comparing and contrasting information. Share your thoughts with your family and friends.

While You Read:

Notice signal words that can help you determine similarities and differences. You may want to highlight signal words in blue. Highlight the first topic in orange, the second topic in green, and the similar features in brown. (You may use any colors available to you – just remember your color scheme!)

After You Read:

- Think about this question, "*How is Mars similar to and different from Earth?*"
- Discuss your ideas with your family or friends. Together, create a collaborative Think Aloud about how you used Whole-Whole Compare-Contrast Nonfiction Text Structure to determine how the planets are similar and different. Share your *thinking* with each other.

Planetary Playing Field: Mars vs. Earth

Comparing all the planets in the solar system, Mars is most like Earth. Scientists, in fact, use Earth as a laboratory to study Mars. They've discovered that both planets have canyons, valleys, volcanoes, polar ice caps, and wild weather. Both have similar amounts of dry land. On Mars and Earth, the rotational axis tilts towards the Sun at about the same angle, which creates defined seasons.

But there are major differences between Mars and Earth. Mars has a hazy, red appearance and a pink sky. It is much smaller than Earth, with only half the diameter. The atmosphere on Mars is primarily carbon dioxide. A year on Mars lasts 687 days, which is the number of days it takes for the planet to orbit the Sun. Mars is also frigidly cold. The average temperature planet-wide is -67 degrees Fahrenheit (-55^0 Celsius). Mars has two small Moons, and a volcano mountain, Olympus Mons, which is three times taller than Mount Everest. NASA scientists recently made an exciting discovery. They found the presence of water on Mars, through studying soil samples gathered by the Phoenix Mars Lander.

Oceans, in contrast, cover 75% of the Earth. The Earth's atmosphere is made up of mostly nitrogen and oxygen. It takes 365 days, or one year for the Earth to orbit the sun. Instead of two Moons, the Earth has one. In addition, the temperature on Earth is much warmer than on Mars, with the planet-wide average 47.3 degrees Fahrenheit (8.5^0 Celsius). Because Earth is larger and denser than Mars, Earth's gravity is stronger.

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Create a Graphic Organizer:

After you have determined the similarities and differences between Mars and Earth, create a graphic organizer below to represent your thinking and to help you remember the author's main points.

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Compare your Think Aloud with Arun's Think Aloud:

Arun's Think Aloud: "In the title I notice the abbreviation for "versus." I am thinking that the author used this word because the passage will share information about Mars and Earth using *compare-contrast text structure*. After reading the first sentence I notice, "Mars is most like Earth." This confirms my thinking. The word "both" tells me that Mars and Earth share some common features. As I quickly skim the rest of the article, I see that there are three paragraphs. Because I'm sure that this passage is written using compare-contrast text structure, the second paragraph is mostly about Mars, and the third paragraph is mostly about Earth, I'm thinking that the passage is going to use *whole-whole compare-contrast text structure*. A *Venn Diagram* will be a great way to organize my thinking. I'll label the circles Mars and Earth.

The first paragraph is describing the similarities of the two planets. I am going to record my thinking in the center where the two circles overlap. I notice that Mars and Earth both have "canyons, valleys, volcanoes, polar ice caps and wild weather." They have "similar amounts of dry land" and "defined seasons" because their axis angles. Wow, I didn't know that Earth shared so many common features with Mars.

As I begin the second paragraph, I see the signal word "differences." This tells me that this paragraph is going to focus on unique features. I notice that this paragraph is specifically talking about Mars. Wow, a "pink sky." Cool! When I see the "-er" as an ending on adjectives, I know that two things are being compared. In this case I realize that Mars is "smaller" than Earth. One Mars year is almost two Earth years, neat! Mars is frigid, too. It has "two moons" and a "volcano mountain three times taller than Mt. Everest." That's amazing!

I will record the unique features of Earth next. Right away I see the signal word "contrast." This tells me that Earth is unique because 75% of the planet is covered in oceans. The atmosphere is different and the year is much shorter. I noticed another signal of compare-contrast text structure. The words "instead of" signal another difference. Earth has only one moon. "In addition" signals another difference. Earth is much warmer. The final sentence has several words with "-er" endings that signal more contrasting information. Earth has a much stronger gravity that Mars. I wonder how the differences in gravity impact NASA's Phoenix Lander and the rovers that are on the planet collecting information for scientists back on Earth

Planetary Playing Field: Mars vs. Earth

Comparing all the planets in the solar system, Mars is **most like** Earth. Scientists, in fact, use Earth as a laboratory to study Mars. They've discovered that **both** planets have **canyons, valleys, volcanoes, polar ice caps, and wild weather**. **Both** have **similar amounts of dry land**. On Mars and Earth, the **rotational axis tilts towards the Sun at about the same angle**, which creates **defined seasons**.

But there are major **differences** between Mars and Earth. Mars has a **hazy, red appearance** and a **pink sky**. It is much **smaller than Earth**, with **only half the diameter**. The **atmosphere** on Mars is primarily **carbon dioxide**. A **year** on Mars lasts **687 days**, which is the number of days it takes for the planet to orbit the Sun. Mars is also frigidly cold. The **average temperature** planet-wide is **-67 degrees Fahrenheit** (-55^0 Celsius). Mars has **two small Moons**, and a **volcano mountain, Olympus Mons, which is three times taller than Mount Everest**. NASA scientists recently made an exciting discovery. They found the presence of water on Mars, through studying soil samples gathered by the Phoenix Mars Lander.

Oceans, in **contrast**, **cover 75% of the Earth**. The Earth's **atmosphere** is made up of **mostly nitrogen and oxygen**. It takes **365 days**, or one year for the Earth **to orbit the sun**. **Instead of two Moons, the Earth has one**. **In addition**, the temperature on Earth is much warmer than on Mars, with the planet-wide average **47.3 degrees Fahrenheit** (8.5^0 Celsius). Because Earth is **larger** and **denser** than Mars, **Earth's gravity is stronger.**

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Compare your Graphic Organizer with Arun's Graphic Organizer:

Arun's Graphic Organizer: "Because the author is comparing and contrasting Mars and Earth I use a Venn Diagram."

Questions to Think and Talk About:

- How do *signal words* help Arun make sense of the text?
- How does the *Venn Diagram* help Arun determine important ideas?
- Why might this process help you make sense of text?
- When might this process be useful?