

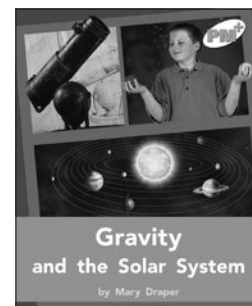
Gravity and the Solar System

PM Levels 24/25

Silver

Text Type Information Report / Explanation / Recount

Running Words 950



Preparing for Guided Reading

Orientation to the text

- Read the title. Study the cover and title page photographs. Ask students what they know about gravity and the solar system. Write their ideas on a chart.

Prior knowledge

- This text explains why the pull of the Sun's gravity attracts the nine planets in our solar system and holds the solar system together.

Building the Balanced Reader

Vocabulary

Key vocabulary

attracts, edge, force, formed, measure, objects, surface, weight

Content Words

billion, destination, distant, gases, gravity, matter, planets, scientists, telescopes, tides, weaker

Decoding

- Apply a complex range of skills to assist in decoding unfamiliar words.

Focusing on the story – guided reading

- Ensure that students understand that the planets and their moons move because of the Sun's gravitational attraction. They are held from floating away into space by the pull of the Sun's gravity. Discuss the meanings of *force* and *attracts*. Talk about what is meant by the statement, *The pull of the Earth's force of gravity holds things onto the Earth's surface and gives them weight*. Read the *Did you know?* statement. Recall that the Sun is just one of the stars in the Milky Way.
- Study the diagram on p. 8. Discuss the key points on this page. Ensure that students understand that the pull of gravity between two objects depends upon both mass and distance. Read the *Did you know?* statement. Talk about the tremendous speed that rocket engines need to produce in order to blast through the Earth's force of gravity.
- Study the illustrations on pp. 10–11. Write the number five billion on the whiteboard or card. Discuss this number in relation to the year 2000. Revise the meaning of *gas*. Search for verbs that reinforce the sequence of events that led to the

formation of the solar system, e.g. swirled, pulled. After reading these pages, invite students to explain in their own words how the solar system was formed.

- Study the model of the planets and read their names. Explain that the model helps the reader to understand the order of the planets, and illustrates their size in comparison to one another. Inform students that the closer a planet is to the Sun, the shorter the length of its year. Explain that the planets can only be seen because they reflect the Sun's light from their surfaces. Reinforce how the moon travels slowly around the Earth, while the Earth travels around the Sun.
- Explain that the tides occur twice daily. They are caused by the Moon and the Earth changing positions. Read the *Did you know?* statement. Ask, *Why do you think you would weigh six times less on the Moon than you do on Earth?* Explain that this is because gravity on the Moon is only one-sixth as great as the force of gravity on the Earth. Recall that gravity allows us to measure weight.
- Study the newspaper report. Recall why some things have a greater force of gravity than others. Read the *Did you know?* statement. Draw a timeline showing the 17th century in relation to the year 2000.

Comprehension

- Which two measurements affect the force of gravity between objects? (*Literal*)
- Why don't people travel to other planets in our solar system? (*Inferential*)
- How did people learn that the earth is not flat? (*Applied Knowledge*)

Follow-up activities

- Discuss reasons for using the Internet. Help students search for further information about the Hubble space telescope by accessing the Hubble website at: <http://opposite.stsci.edu/pubinfo/>
- Find out about other things in our solar system, e.g. asteroids, comets and meteors.
- Have students discuss what it would be like to travel in space. Ask them to write about their journey, their feelings on the trip, and any problems that they encountered.

Gravity and the Solar System

Date _____

PM Levels 24/25

Silver

Learning Intentions

- We are learning to apply a complex range of skills to decode unfamiliar words in the text.
- We are using our knowledge of text types, language structures, vocabulary, Contents and the Index to gain a deeper understanding of the text.

• _____

Success Criteria

- I can use a wide range of skills to assist me in reading unfamiliar words in the text.
- I can use my knowledge of text types, language structures, vocabulary, Contents and the Index to gain a better understanding of the text.

• _____

Guided Reading Notes

Student's name	Reading focus	Observations/notes	For follow-up