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Happy Birthday

See how time is measured by Earth's trip around the sun, the number of heartbeats, or the length of a birthday noodle!

CONVERSATION QUESTION

How can time be measured in different ways?

TEACHING OBJECTIVES

- Students will learn different ways time is measured
- Students will learn how time is observed
- Students will obtain and evaluate information
- Students will use mathematics and computational thinking
- Students will integrate content presented in diverse formats
- Students will draw evidence from an informational text to support analysis
- Students will write informative text to convey information clearly
- Students will explain cultural differences



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

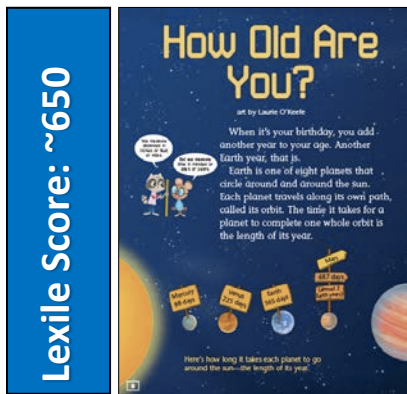
SELECTIONS

- **How Old Are You?**
Expository Nonfiction, ~650L
- **Just a Second**
Narrative Nonfiction, ~750L
- **Let's Party**
Expository Nonfiction/Photo Essay, ~850L

How Old Are You?

pp. 18–11, Expository Nonfiction

Students learn about how orbits relate to the length of a year. Use this article to teach students how to use text and graphics to obtain information and draw evidence.



OBJECTIVES

- Students will read and analyze a nonfiction science article
- Students will obtain and evaluate information
- Students will draw evidence from an informational text to support analysis

KEY VOCABULARY

- **planet (p. 8)** a large, round object in space that travels around a star
- **sun (p. 8)** the star that the Earth moves around and that gives the Earth heat and light
- **orbit (p. 8)** to travel around something in a curved path

ENGAGE

Conversation Question: How can time be measured in different ways?

Explain that a year is how long the Earth travels around the sun. Have two students model this by one standing still as the sun, and the other walking around as a planet. Next, tell students how years are longer or shorter on different planets depending on their distance from the sun. Have several students walk around the “sun” at different distances. Ask students to decide why some paths are longer. Explain that a year is longer the farther the planet has to travel.

INTRODUCE VOCABULARY

Write the vocabulary words where they are visible. Have students draw a picture of the sun and a planet, and label these on their paper. Next, have them draw the path of the planet around the sun and label it “orbit.”

READ & DISCUSS

After reading the article, use these prompts in a class discussion:

- How many days does it take Earth to travel around the sun?
- Why does it take longer for Jupiter?
- Which planet would you be the oldest on? Why?
- Why would you be different ages on other planets?

CONCEPT/SKILL FOCUS: Draw Evidence

INSTRUCT: Guide students to point to the different planets and trace their orbits around the sun. Ask children to explain why it takes some planets longer to make the journey than others. Reinforce the concept that a trip around the sun equals a year. Ask students to explain why they would be a different age on Mercury. Then have them explain reasons for the differences on other planets with a partner.

ASSESS: Listen to the students’ explanations to see if they are grasping the concepts of different orbits based on distances from the sun and how this changes the length of a year.

EXTEND

Language Arts/Speaking Students draw their favorite planet and explain how many years old they are according to this planet’s orbit around the sun.

Just a Second

pp. 12–17, Expository Nonfiction

Use this article to help students learn about what can take place in different lengths of time.



RESOURCES

- About Time!

OBJECTIVES

- Students will read and analyze a nonfiction science article
- Students will use mathematics and computational thinking
- Students will write informative texts to convey information clearly

KEY VOCABULARY

- **beats** (p. 12) to move with an up-and-down motion
- **sprinting** (p. 12) running fast for a short distance
- **gallops** (p. 13) runs or moves quickly
- **lumbers** (p. 13) moves in a slow or awkward way

ENGAGE

Conversation Question: How can time be measured in different ways?

Ask students what they think can happen in a second. Have them snap their fingers to show how long a second is. Record their ideas. Next, have them watch time change on a clock for a minute. Ask them for ideas about what can happen in a minute. Explain that this article is all about what can happen in a second, minute, hour, day, week, month, and year.

INTRODUCE VOCABULARY

Write the vocabulary words where they are visible. Explain that these words all describe an action. Have students act out each word, using arms to show wing beats, and body motions in the gym or playground for the rest of the words.

READ & DISCUSS

Use these prompts in a class discussion as you read the article together.

- What can you do in a second?
- After reading page 23, take students outdoors to walk a minute and measure the distance.
- If hair grows $\frac{1}{2}$ inch in a month, how long does it grow in a year?
- What do you think is the most surprising fact?

CONCEPT/SKILL FOCUS: Computational Thinking

INSTRUCT: Review a few examples on each page and discuss what else takes a second, minute, hour, etc. Guide students to use the *About Time!* graphic organizer to record their ideas with words and/or pictures.

ASSESS: Listen to the students' explanations to see if they are grasping the concepts of different lengths of time using reasonable examples.

EXTEND

Language Arts/Writing Students collaborate to make a poster of one of the time segments using their own ideas and those from the article. Have them plan what to draw and write on their posters. When finished, have students share what they included and explain why.

About Time!

Write words or draw pictures to show what can happen during each amount of time.

Time	What happens . . .
Second	
Minute	
Hour	
Week	
Month	
Year	

Let's Party

pp. 21–23, Expository Nonfiction

Use this article to help students learn about birthday traditions in different cultures.



Lexile Score: ~850

OBJECTIVES

- Students will read and analyze a nonfiction article
- Students will integrate content presented in diverse formats
- Students will explain cultural differences

KEY VOCABULARY

- **ancient (p. 22)** belonging to a time that was long ago
- **symbolize (p. 22)** to represent something
- **piñata (p. 22)** a decorated paper container filled with candies and gifts that is hung up at parties and hit with a stick until it is broken and the things inside it fall out

ENGAGE

Conversation Question: How can time be measured in different ways?

Ask students to share their family birthday traditions. Discuss similarities and differences. Have students examine the illustration on the first two pages of the article to point out the birthday traditions they will be reading about.

INTRODUCE VOCABULARY

Students write the vocabulary words on strips of paper and search for the words on page 22. Have students share the sentences that include each word and use context clues to explain what they mean. Provide prompts and support to guide understanding.

READ & DISCUSS

Use these prompts in a class discussion as you read the article together.

- Which traditions relate to food?
- Which traditions are most like your own?
- Which traditions would you enjoy?
- Why do people celebrate birthdays?

CONCEPT/SKILL FOCUS: Evaluate Content

INSTRUCT: Review how the article uses graphics to share information. Ask how this format helps them understand the different traditions the text is describing. Spend time studying the inset drawings and seeing how they relate in the bigger picture on the first two pages.

ASSESS: Listen to the students' explanations to see how they are grasping how the illustrations work together with the text to provide information.

EXTEND

Language Arts Students collaborate in groups to plan a birthday celebration that uses traditions from multiple cultures. Have them share their plans with the class and indicate what cultural traditions they are including in their celebration.