

Leap Year

Pre-Reading

A. Warm-Up Questions

1. What does the word "leap" mean?
2. What is a leap year?
3. Is this year a leap year?
4. Do you know anyone whose birthday is on February 29?



Did you know...

The chance of being born on February 29 is 1 in 1,461!

B. Vocabulary Preview

Match up as many words and meanings as you can.

Check this exercise again after seeing the words in context on page 2.

- | | |
|---------------------------------|---|
| _____ 1. divisible | a) to cause to occur at the same rate or time |
| _____ 2. synchronize | b) not moving in the way it is supposed to |
| _____ 3. shift (<i>noun</i>) | c) a change that makes a wrong thing right |
| _____ 4. correction | d) able to be divided without a remainder |
| _____ 5. off track | e) to make a change |
| _____ 6. reform (<i>verb</i>) | f) a person who studies the universe |
| _____ 7. astronomer | g) a 100-year period |
| _____ 8. century | h) to make a suggestion based on expertise or knowledge |
| _____ 9. adoption | i) a slight change in movement |
| _____ 10. advise | j) the act of using something new |

Reading

1. A leap year occurs about once every four years in the Gregorian calendar. The Gregorian calendar is the most commonly used calendar around the world. Almost any year that is **divisible** by four is a leap year. When it is a leap year, February has 29 days. In other years, February only has 28 days.
2. Leap years are used to **synchronize** our calendar with the seasons. The earth takes about 365.24 days to orbit the sun. This extra quarter of a day causes a **shift** in the calendar. To make up for the shift, we add an extra day to our calendar every four years. Without this **correction**, the seasons would eventually get **off track**.
3. Leap years are not a new invention. Julius Caesar **reformed** the Roman calendar by adding leap days in 46 BC. A Greek **astronomer** named Sosigenes recommended this correction. The new calendar was called the Julian calendar.
4. A further correction involving **centuries** was made with the **adoption** of the Gregorian calendar in 1582.* A German mathematician named Christopher Clavius **advised** Pope Gregory XIII not to add a leap day on years ending in 00 (unless divisible by 400). This is because the earth's rotation takes place in just under 365.25 days. Hence, the year 2000 was a leap year, while the years 1700, 1800, and 1900 were not.

*Note

In addition to the centuries rule for leap years, the Gregorian calendar removed a full 10 days from the calendar because Easter was moving too far away from spring. There was a slow adoption of this calendar.

Comprehension

1. Which calendar does most of the world use?

2. How can you calculate whether a year is a leap year or not?

3. How did Julius Caesar change the Roman calendar?

4. How did Pope Gregory XIII change the Julian calendar?

5. Based on the information you learned in the reading, when is the next leap year (not including this year)?

Movement Break

Walk around the room and find out when your classmates' birthdays and years are. Can you find anyone who was born in a leap year? Do any of you share the same birthday?

Vocabulary Review

A. Spot the Error

Circle the errors in the sentences below. Then write the corrected sentences in your notebook.

1. Is 2020 divisible of four?
2. An astrologer is a scientist who studies the universe.
3. A century is a four-year period.
4. Christopher Clavius adviced the calendar reform in the 16th century.
5. Let's anchronize our watches so they all have the exact same time.

B. Parts of Speech

Read the words below. Change the word form to the part of speech in parentheses after the arrow. Use a dictionary if you need to.

#	Word Form
1	<u>divisible</u> → _____ (adjective) (verb)
2	<u>correction</u> → _____ (noun) (verb)
3	<u>adoption</u> → _____ (noun) (verb)
4	<u>advise</u> → _____ (verb) (noun)
5	<u>reform</u> → _____ (verb) (noun)

Spelling Trick

Because of how it is pronounced, the word "calendar" is commonly misspelled with "er" instead of "ar." Use this trick to remember the "ar" ending: **Are** you coming to my birthday party?

Discussion & Research

1. Why did humans invent calendars? Do you think we could live without them?
2. How do people celebrate their birthday every year if they were born on February 29?
3. What is the difference between an *astronomer* and an *astrologer*?
4. What do you think a leap second is? Take a guess. Then do some research for homework and share your findings with your class.
5. What are the chances of two people in your class being born on the same day? Ask a mathematician to help you, or use an online probability calculator.

Listening

A. Gap Fill

Fill in the blanks as you listen to the recording.

1. A _____ occurs about once every four years in the Gregorian calendar. The Gregorian calendar is the most commonly used calendar around the world. Almost any year that is _____ by four is a leap year. When it is a leap year, February has 29 days. In other years, February only has 28 days.
2. Leap years are used to _____ our calendar with the seasons. The earth takes about 365.24 days to orbit the sun. This extra quarter of a day causes a _____ in the calendar. To make up for the shift, we add an extra day to our calendar every four years. Without this _____, the seasons would eventually get off track.
3. Leap years are not a new _____. Julius Caesar _____ the Roman calendar by adding leap days in 46 BC. A Greek _____ named Sosigenes recommended this correction. The new calendar was called the Julian calendar.
4. A further correction involving _____ was made with the _____ of the Gregorian calendar in 1582. A German mathematician named Christopher Clavius _____ Pope Gregory XIII not to add a leap day on years ending in 00 (unless divisible by 400). This is because the earth's _____ takes place in just under 365.25 days. Hence, the year 2000 was a leap year, while the years 1700, 1800, and 1900 were not.

B. Extra Practice

Listen to the reading. Write down all of the numbers and words related to numbers that you hear. Now can you summarize the reading using these numbers as your guide?