



A Day Longer than a Year

"I am ten years old," said Carly. "A year is the time it takes a planet to make one **revolution** around the sun. So going around the sun one single time takes Earth 365.24 days. To make things easier, we say one year is 365 days. Then every four years, we have a leap year. On leap years, February has 29 days instead of 28 days."

Greg said, "A day is the length of time that it takes a planet to rotate, or spin, on its axis. It takes Earth almost 24 hours to spin completely around. To make things easier, we just say one day on Earth is 24 hours."

"Let's see," said Carly, "if I am 10 years old, then that means that during my lifetime, Earth has made 10 revolutions around the sun. It means that I am 3,652.4 days old because Earth has rotated on its axis that many times. Wow, I sound a lot older if I say how many days I am."

"You wouldn't sound older on Venus," Greg said. "On Venus, a day is longer than a year."

"That's impossible," Carly said laughing. "A day can't be longer than a year."

"Yes, it can," said Greg. "Venus is the second planet from the sun. It is the brightest natural object in the sky after the moon. And like the moon, it can even cast shadows!"

"That's interesting," said Carly, "but that doesn't explain how I can be a greater number of days old than years old."

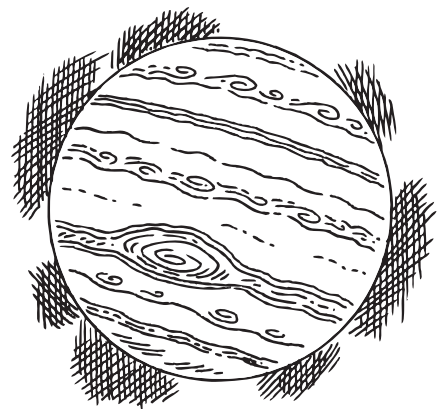
Greg said, "Venus is the planet with the longest day. One day on Venus is equal to 243 Earth days. That's because it takes Venus 243 Earth days to spin completely around on its axis. A year on Venus is only 224.7 Earth days. That's because it takes Venus 224.7 Earth days to make a complete revolution around the sun. Since it takes Venus longer to spin around on its axis than it takes to go around the sun, its day is longer than its year."

"What about Jupiter?" asked Carly. "Am I more days old than years old on Jupiter?"

"Definitely not!" answered Greg. "Jupiter is the largest planet and fifth from the sun. It has the shortest day out of all the planets. A day on Jupiter is only 9.8 Earth hours long! When astronomers look at Jupiter from Earth, they can see some of its features change! A year on Jupiter is 11.86 Earth years because that is how long it takes for Jupiter to make one complete revolution around the Sun."

"So if I lived on Venus, I'd be 15 days old, but I would be 16.2 years old. How old would I be if I lived on Jupiter?"

Greg began to laugh. He said, "You would be almost 9,000 days old, but you wouldn't even be one year old! You'd still be waiting for a birthday cake with one candle!"



A Day Longer than a Year *(cont.)*

Would Carly still be waiting for a birthday on Jupiter? It is time to check facts.



Thesaurus

1. Which word is not a synonym for *revolution* the way it is used in this story?

- (A) turn (B) spin (C) rotation (D) still



Image Search

1. Is Venus the 2nd planet from the sun and Jupiter the 5th? **Yes** **No**

2. Which planet is 3rd? _____ Which is 4th? _____

Calculator

Use a calculator to find out your age in days and years for each planet.

Step 1: Multiply your age in years by 365. _____ x 365 = _____ days old

Step 2: Divide your day number by each planet's **rotation period**.

Planet	Rotation Period	Your Age in Days on Each Planet
Mercury	58.6 days	
Venus	243 days	
Mars	1.03 days	
Jupiter	.41 days	
Saturn	.45 days	
Uranus	.72 days	
Neptune	.67 days	



Step 3: Divide your day number (for Mercury and Venus) or your year number (for the other planets) by each planet's **revolution period**.

Planet	Rotation Period	Your Age in Years on Each Planet
Mercury	88 days	
Venus	224.7 days	
Mars	1.9 years	
Jupiter	11.96 years	
Saturn	29.5 years	
Uranus	84.0 years	
Neptune	164.8 years	

In Your Own Words

Imagine how people might celebrate birthdays on Jupiter. Are birthdays more special because they don't happen very often? Is there a party, gifts, or games? Explain.

Answer Key *(cont.)*

Fact Find #22: Enough Rice?

Thesaurus:

1. Possible answers include *huge, large, tremendous,* and *gigantic*.
2. D

Images: Yes

Calculator:

(Answers are written in this format: "square number : grains of rice." For example, "3 : 4" means that there were 4 grains of rice on Square #3.)

1. 4 : 8; 5 : 16; 6 : 32; 7 : 64; 8 : 128; 9 : 256; 10 : 512; 11 : 1,024; 12 : 2,048; 13 : 4,096; 14 : 8,192; 15 : 16,384; 16 : 32,768; 17 : 65,536; 18 : 131,072; 19 : 262,144; 20 : 524,288

Sum of all squares = 18,446,744,073,709,551,615

Fact Find #23: Scared Stiff

Dictionary:

1. You become so frightened that you are unable to move or think.
2. B

Images:

1. The drawing should show a creature with 2 body parts and 8 legs.
2. large abdomen

Calculator:

1. Answers will vary.
2. Yes
3. No
4. Yes
5. Yes

Translator:

1. queen
2. D

Fact Find #24: A Day Longer than a Year

Thesaurus:

1. D

Images:

1. Yes
2. 3rd: Earth, 4th: Mars

Calculator: Answers will vary.

Fact Find #25: Seaworthy Sale?

Thesaurus:

1. ship, boat, tanker
2. cup, bowl, mug

Atlas:

1. True
2. True

Currency Converter: Answers depend on the current exchange rate.

Search Engine/Encyclopedia:

1. 4th
2. Indian
3. bow — front
stern — back
port — left
starboard — right