



Age on Planets

Did you know that time is measured differently on each planet? One Earth year is equivalent to the amount of time it takes for Earth to make one trip around the sun. On other planets, this time is shorter or longer. Using the age chart, calculate what your age in Earth years would be if you lived on another planet!

TEKS:

Math 5.3B: The student is expected to multiply with fluency a three-digit number by a two-digit number using the standard algorithm.

Math 5.3C: The student is expected to solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.

Math 5.3G: The student is expected to solve for quotients of decimals to the hundredths, up to four digit dividends and two digit whole number divisors, using strategies and algorithms, including the standard algorithm.

Materials:

- New Age Chart (attached)
- Paper and pencil (to do calculations)

How To:

1. Calculate your age in Earth *days*. This is your age multiplied by 365. Record this on the *New Age Chart* below.
2. Determine how old you are on the four terrestrial planets (Mercury, Venus, Earth, and Mars). To do this, divide your age in *Earth days* by the number of days in a planet's year (this information is on the age chart). Your answer is your "new" age. For example, a 20 year old on Earth would be 83 years old on Mercury! ($20 \times 365 = 7,300$ Earth days; $7,300/88 = 83$). Fill in your new age on the age chart as you calculate it for each planet.
3. To find your age on the outer planets (Jupiter, Saturn, Uranus, Neptune, and Pluto), divide your age in *Earth years* by the approximate length of the planet's year in Earth years. This is your "new" age. For example, a 20 year old on Earth would only be 1.7 years old on Jupiter because $20 / 12 = 1.7$. Again, record your new age for each planet on the chart.

31 Days of STEM FUN!

STEM Explanation:

One year on Earth is the amount of time it takes for Earth to orbit, or travel around, the Sun one time. Each planet in the solar system has a different orbit path around the Sun, so each planet takes a different amount of time to orbit the Sun. This is why each planet has a different length year than Earth's year. Since we know how long another planet takes to orbit the Sun, we can calculate what our age would be on other planets! In our example above, a person 20 years old on Earth is only 1.7 years old on Jupiter. This is because in the time it takes Earth to orbit the Sun 20 times, Jupiter only completes 1.7 orbits! If someone is 124 years old on Mercury, can you determine how old they are on Earth? The age that you are on different planets wouldn't really change how old you are—if you went to Pluto, you wouldn't become a baby. You would still look the same way you do right now; your age would just be different!

Check your math on the Exploratorium's *Your Age on Other Worlds* [online calculator](#).

Career Connection:

Mathematicians do research to develop and understand mathematical principles. They analyze data and use mathematical techniques to help solve problems in the world. They often work with teams of scientists and engineers. To be a mathematician, you need to get at least a master's degree in mathematics.

Resource:

http://www.spacegrant.hawaii.edu/class_acts/HowOld.html

31 Days of STEM FUN!

www.destember.org | [#deSTEMber](https://twitter.com/deSTEMber) | © 2016 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart

New Age Chart

My age in Earth days (age x 365) = _____ Earth days.

Terrestrial Planets	Approximate length of year	Your "new" age
Mercury	88 Earth days	
Venus	225 Earth days	
Earth	365 Earth days	
Mars	687 Earth days	

Outer Planets	Approximate length of year	Your "new" age
Jupiter	12 Earth <i>years</i>	
Saturn	29.5 Earth <i>years</i>	
Uranus	84 Earth <i>years</i>	
Neptune	165 Earth <i>years</i>	
Pluto	248 Earth <i>years</i>	

31 Days of STEM FUN!