

## Bill Nye- Planets

Name: \_\_\_\_\_

1. There are 8 planets.
2. They all go around the sun in the **counter clockwise** direction.
3. Saturn is the one with big **flat** rings.
4. The planets in much closer to the sun are much **smaller. First 4 have a crust.**
5. In the model with Bill Nye riding his bike...
  - a) Mercury is 39 meters away.
  - b) Venus is 72 meters away.
  - c) Earth is 100 meters away.  
(really 150 million km)
  - d) Mars is 152 meters away.
  - e) Jupiter is 520 meters away.
  - f) Saturn is 953 meters away.
  - g) Uranus is 1919 meters away.
  - h) Neptune is 3006 meters away.
  - i) *Pluto is 4000 meters away.*
6. Planets and moons shine by reflecting (non-luminous) sunlight.
7. Earth is the only planet to have liquid water.
8. When the Earth gets closer to the sun it goes faster.
9. When the planets are farther away from the sun they go slower and have longer distances to travel.

10. All the planets move counter clockwise.

## Bill Nye: The Sun

Name: \_\_\_\_\_

1. How hot is the sun? 6, 000 degrees C
2. How many Earth's would you need to fill up the sun? 1.3 million
3. How many Earth's could you fit across the circumference of the sun? 109\*
4. The energy for everything comes from the Sun.
5. What do photovoltaic cells do? Convert solar energy into electricity.
6. How hot is a solar flare? 10,000 degrees C
7. Where can you find a solar flare? The outer atmosphere of the sun called the corona.
8. The sun is a star (luminous object = make their own light).
9. The darker your skin is, the more melanin (pigment) your skin has.
10. 1,400 watts of energy land on every square meter of earth.
11. Sunspots are "cooler" spots on the surface of the sun.
12. Black colours absorbs the most energy.
13. Glass? keeps the most heat.

### **Bill Nye: Earth's Seasons**

1. Earth's seasons affect everything on Earth.
2. Why do we have seasons on Earth? Earth is tilted, which causes uneven heating of the Earth's surface.
3. When Earth is towards the sun it's day. When Earth is away from the sun it's night. When Earth is tilted toward the sun, it's summer. Tilted away it is winter.
4. What angle is the Earth tilted on it's axis? 23.5 degrees.
5. It's hot in the summer because we get sunlight directly on the surface. It's cold in the winter because we get sunlight at an angle.
6. What device did Bill use to show that the Earth is turning on it's axis? Focal Pendulum
7. During the summer season Alaska only gets a couple of hours of darkness a day.
8. How long does the Earth take to go around the sun? 364.25 days
9. The axis staying pointed the same way in space is the reason for the seasons. The axis can be found using the North Star (Polaris).
10. The shadow on a sundial goes the same direction as the hands on a clock.
11. What do June 21 and December 21 have in common? Solstices = longest days/nights of the year.
12. When are days and nights the same length all over the world? What are the dates for these? Equinoxes = March 21 and Sep 21.

13. The position of the sun in the sky changes from day to day and month to month.

14. A tilted Earth is why we have seasons.

Using your knowledge of the solar system, draw a 'map' of the solar system:

