

# Explore the Solar System!!

A "We are missing Riverboat Days" Activity

*Wouldn't it be great to go for a walk with the family and learn a couple of new things along the way? Well, did you know some enterprising Terracites thought to model our solar system along the **Grand Trunk Pathway**. It starts with a large **Sun** painted on the pathway by the Kwinitsa station building, then a series of granite tiles embedded by the path for the first six planets and posted signs for the locations of the more distant Uranus and Neptune. And it is all to a scale of 1 to 1 billion. Every one metre of path you walk equates to 1 million kilometres! You'll get a good sense of the immensity of the solar system while enjoying a leisurely stroll.*

*Look for the 30 cm x 30 cm black granite tiles adjacent to the south side (railway side) of the paved pathway. More information about the project is at [www.terrace.ca/planets](http://www.terrace.ca/planets).*

Here is the route and some distinguishing facts about each planet:

Starting at the Sun, **Mercury** is just 58 metres along the path, in the flowerbed. Close, except this still represents 58 million kilometres from the Sun!

-Not only the planet closest to the Sun, Mercury is also the smallest planet. Its diameter is just under 5000km, is about 40% that of the Earth.

-The planet is named after the Roman god Mercury, the messenger of the gods – fittingly named because the planet travels around the sun so quickly, an orbit in 88 Earth days.

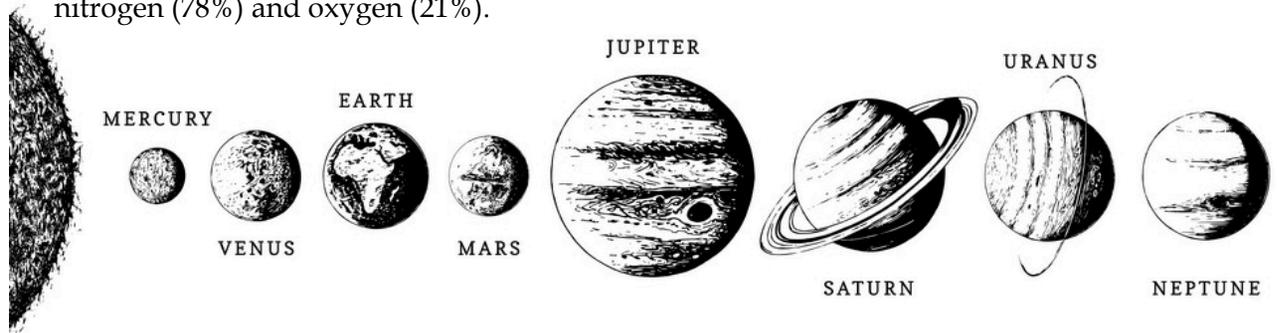
- Mercury has the most "eccentric" orbit of the planets – meaning it travels around the sun along a path least like a circle.
- The planet has no moons and no rings but has a thin atmosphere
- Mercury experiences extreme temperatures, from -170 degrees Celsius to +430 degrees!

Next up is Earth's closest planet neighbour **Venus**. It is in front of the Skeena Valley Model Railroad Association rail car at 108 metres.

- Venus and Earth are of near equal size.
- though further from the Sun than Mercury, because of atmospheric conditions, Venus is the hottest planet in the solar system. Temperatures reach 460 degrees Celsius.
- It is the only planet named after a female figure, the Roman goddess of love and beauty.
- after the Sun and the Moon, Venus is the third brightest object in our sky.
- Venus rotates so slowly on its axis that it orbits around Sun quicker than a single rotation. The effect of this is that a day on Venus is longer than a year! Yes, that is a head scratcher!

Our favourite planet, **Earth** is another 40 metres along.

- On average, it takes 8 minutes and 20 seconds for sunlight to reach the Earth
- no other planet is known to have liquid water.
- the two main gases in Earth's atmosphere are nitrogen (78%) and oxygen (21%).



- Earth is the only planet that has life. Right?
- Earth is tilted 23.5 degrees on its axis. Combined with orbiting around the sun a tilted axis gives rise to the seasons. Some planets have no seasons.

Near the Blue Bear at 228 metres you find the last of the rocky (terrestrial) planets: **Mars**.

- Mars is the 2<sup>nd</sup> smallest planet. Its diameter is about half that of Earth.
- The highest mountain on any planet is found on Mars. At a height of 25 kilometres, *Olympus Mons*, is 3 times higher than Mount Everest.
- a day on Mars is very similar to a day on Earth. A Martian day lasts 24 hours 40 minutes.
- Mars has two small moons: Phobos and Deimos. In mythology, these are twin brothers and the sons of the Roman God of War, Mars (or Ares in Greek mythology).
- Mars has no significant magnetic field. This could be because the planet may have a solid core versus a liquid core like Earth.

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Now it is a bit of a stroll to get to the first and largest gas giant planet: **Jupiter**. At 780 metres away, you travel through the asteroid belt to find Jupiter located on the west side of Kenney Street.

- By far the largest planet in our solar system, more than twice as massive as all the other planets combined.
- Jupiter's Great Red Spot is a massive storm that may have been raging for hundreds of years.
- Jupiter spins quickly on its orbit but travels slowly around the Sun. One rotation or one Jupiter Year is about 12 of our Earth years.
- Jupiter has it all: many moons and even rings. Saturn is not the only planet with rings.
- We are starting to get far from the Sun. Light from the Sun takes about 40 minutes to reach Jupiter.

The distances keep getting greater. **Saturn** is found at 1425 metres away from the Sun (1.4 billion real kilometres). Its black tile is just east of the Logger's Commemorative Plaque, near Kalum Lake Road.

- Saturn is the 2<sup>nd</sup> largest planet in our solar system. 9x larger than Earth
- Saturn is famous for its rings. These are composed mostly of ice, rocks and dust. The rings extend far out from the planet – 280,000 kilometres – but are less than a kilometre thick.
- Saturn is the last planet discovered without the use of a telescope or a technology aid.
- The planet has more than 50 moons and many other candidates yet to be confirmed.
- Like Jupiter, Saturn is a gas giant with an atmosphere mostly of hydrogen and helium.

At Earle Street is **Uranus** at 2870 metres, double the distance of Saturn from the Sun. Look for the sign on the west side of Earle St..

- Uranus is the Greek god of the sky
- It was the first planet discovered using a telescope, in 1781
- Uranus is noted for its extreme tilt. It rotates as if lying on its side. Scientists speculate it was involved in a huge collision in its distant past causing this extreme tilt.
- Most planets rotate in the same direction, from west to east. Two planets, Uranus and Venus, turn the opposite way.
- For Uranus a complete orbit of the Sun takes 84 Earth years.



planet image

planet diameter  
in kilometres

**Neptune sign at  
Kitsumkalum**

**Neptune**, the last undisputed planet, is 4.5 km west of the Kwinitza Station, whose sign is located at the West Kalum Road opposite the Kitsumkalum Band Council Offices.

- Neptune is a long, long way from the Sun – 4.5 billion kilometres away!
- It takes over 4 hours for sunlight to make its way to Neptune.
- It is a cold, stormy place. Winds of 2000 km/hour have been estimated. Surface temperatures average -214 degrees Celsius.
- Neptune has 14 known moons. Unusually, its largest moon, Triton, circles Neptune in a direction opposite the rotation of the planet. There is speculation Triton was an independent object, captured by Neptune's gravity.
- It is a long way to make an orbit of the Sun, taking about 165 Earth years!

That leaves poor **Pluto** – once considered a planet but since demoted. Pluto orbits around 6 billion kilometres from the Sun. To accord with the scale model a sign designating Pluto would be placed near the "Welcome to Terrace" sign at the Yellowhead Highway pullout west of town, 1.5km beyond Kitsumkalum.



**Grand Trunk Pathway**

### Online information sources:

- [terrace.ca/planets](http://terrace.ca/planets)
  - [solarsystem.nasa.gov/planets/overview](http://solarsystem.nasa.gov/planets/overview)
  - [theplanets.org](http://theplanets.org)
- images: vectorstock.com

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