

Key Stage 3

Worksheet 1 / Planet Pavilion



CENTRE FOR ENGAGEMENT



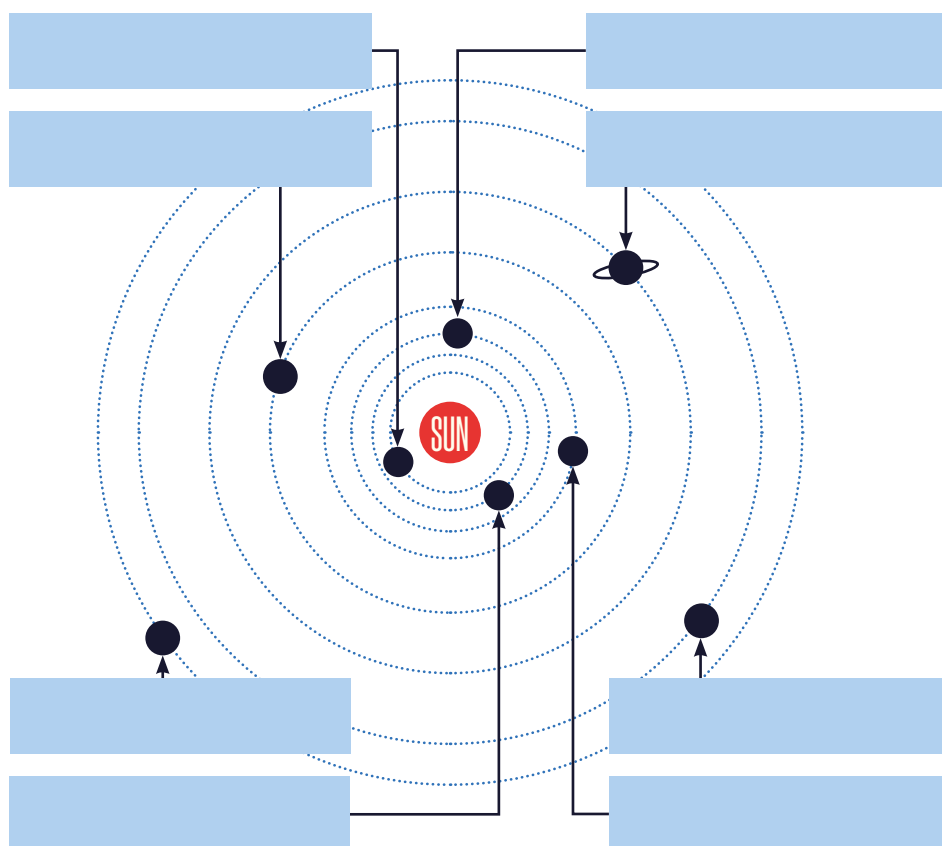
Welcome to the Planet Pavilion – here are some questions to answer!

The Jodrell Bank Orrery

This is a moving model of our Solar System (if it is not moving, **turn the handle**)

The orrery planets orbit faster than the planets in real life: **1 minute in the orrery = 1 year in real life**

1. **Label** each of the planets below...



2. **How many planets** are there in the Solar System?

3. Which planet is orbiting the Sun **the quickest**?

4. Which planet is orbiting the Sun **the slowest**?

5. What **force** is keeping the planets in their orbits?

In reality you could fit the **Earth** inside the **Sun** 1.3 million times.

6. Do you think our orrery shows the solar system to scale?

yes **no**

(To scale means that things are shown in the correct sizes when compared to each other)

Key Stage 3

Worksheet 3 / Space Pavilion



Welcome to the Space Pavilion – here are some questions to answer!

Start around the **wooden model** of the Lovell telescope

Try pointing the model at a friend to see how the real telescope moves around!

1. The telescopes at Jodrell Bank don't collect visible light. What do they collect?

Hint: Read ● **The Dish** near the wooden model

2. The dish of the Lovell telescope is a **paraboloid** shape (a bowl shape). Why is this shape important?

Hint: Read ● **The Focus** near the wooden model

3. What is the diameter of the Lovell telescope?

The Lovell telescope is the third largest moveable telescope in the world!

Find the black hole – spin a ball into it

4. Which **force** pulls objects into black holes?

5. In this model, what **force** slows the ball, causing it to spiral inwards?

Now find the TV screen that shows you in strange colours

This is an **infrared camera**. It is sensitive to **heat**. If you can't see yourself, you're too close! **Move backwards from the screen!**

6. Which part of you shows as the highest temperature?

7. Why don't clothes appear as hot as areas of bare skin (e.g. face)?

8. Find the props near the screen. For each of the props, **circle** whether it is **opaque** or **transparent** to **visible light** and **infrared**.

	Visible light	Infrared
Black bin bag	Opaque Transparent	Opaque Transparent
Plastic 'alien' mask	Opaque Transparent	Opaque Transparent
Piece of paper	Opaque Transparent	Opaque Transparent

Key Stage 3

Worksheet 4 / Space Pavilion

Find the area about pulsars

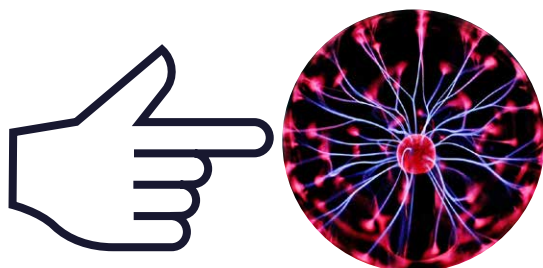
9. Which astronomer first discovered pulsars?

Pulsars are sometimes left over after giant stars explode. They are extremely dense - around the size of a city, but containing as much matter as the Sun! They spin very fast, shooting out radiation like cosmic lighthouses.

Find the **plasma ball!** (The glass ball with electricity inside)

Plasma is electrically charged gas. Stars (like the Sun) are made of plasma.

10. Draw an arrow to show the flow of electric charge when you touch the plasma ball.



Find the dome with two planets orbiting a star

Exoplanets are planets outside our solar system, orbiting around other stars.

11. The amount of light from the star is measured by a camera (in the red circle) and shown on screen. What happens to the light level when a planet passes between the star and camera?

12. This shows one way of finding exoplanets. Which planet (small or large) is easier to detect? Why?

13. How many exoplanets have astronomers discovered so far?

Find the see-through telescope

14. What type of object can you see through the telescope?

15. This telescope is an example of a reflecting telescope. What does it use to focus the beams of light?

Look behind you at the world map of telescopes

This map shows some of the big telescopes across the globe.

16. Choose two telescopes; write down their names, where they are and how big they are.

Name

Location

Size

Name

Location

Size