



Space Explorers: Size, Distance and Scale

A single lesson, cross-curriculum Curiosity Pack for Year 5

At a Glance

Topic: Size, Distance and Scale in Space

Age Level: Year 5

Session Length: 45–60 minutes

Wonder Seekers will:

- explore how large the Solar System is
- investigate the size of planets and the Sun
- compare distances between objects in space
- examine how scientists use scale
- use mathematics and measurement
- create a space scale project

Lesson Overview

This Curiosity Pack introduces Wonder Seekers to the enormous size and distance of objects in the Solar System.

Learners investigate how scientists compare planets, measure distances in space, and use scale models and diagrams to represent things that are too large to see in real life.

The lesson combines science, mathematics, design, inquiry, and creativity through observation, investigation, comparison, and project creation.

This learning experience supports:

- observation and questioning
- scientific investigation
- mathematical thinking
- measurement and scale
- visual communication
- creative expression

The lesson is designed using inclusive learning principles, supporting diverse learning needs through:

- self-paced learning
- visual supports



- flexible activity choices
- hands-on exploration
- multiple ways to show learning

Session Length

Total learning time: 45–60 minutes

Wonder Seekers may:

- ✓ complete the lesson in one session
- ✓ pause and return later
- ✓ spend longer on favourite activities
- ✓ simplify or extend the task

Learning Focus

This Curiosity Pack explores:

- the Solar System
- planet size
- distance in space
- measurement
- scale
- scientific models

Learners will:

- ✓ investigate how scientists compare objects in space
- ✓ identify differences in planet size and distance
- ✓ use scale to represent space objects
- ✓ organise ideas visually
- ✓ communicate discoveries through drawing, building, writing, or discussion
- ✓ create a space scale project inspired by their investigation

Success Looks Like

Success may look different for each Wonder Seeker.

Examples may include:

- ✓ comparing the size of planets
- ✓ explaining why scientists use scale
- ✓ creating a labelled diagram
- ✓ building a scale representation
- ✓ creating a chart or fact page
- ✓ sharing discoveries in a way that works for them



Exploring, noticing, testing, and creating are all part of success.

Materials

You may want:

- paper or workbook
- pencils and coloured pencils
- ruler
- pictures of the Solar System
- books or websites about space
- scissors
- glue or tape
- cardboard or craft paper

Optional:

- LEGO or blocks
- modelling clay or playdough
- recycled materials
- measuring tape
- tablet or computer
- graph paper

Suggested Learning Resources

NASA Space Place – Space Science for Kids

<https://spaceplace.nasa.gov>

Games, activities, facts, and explanations about planets, the Sun, gravity, and the Solar System.

Britannica Kids – Solar System

<https://kids.britannica.com>

Articles, photographs, and facts about planets, moons, and the Solar System.

NASA Eyes on the Solar System

<https://eyes.nasa.gov>

Interactive models showing planets, moons, spacecraft, and distances in space.

SciShow Kids – Space Science

<https://www.youtube.com/@SciShowKids>





Short educational videos explaining space, gravity, motion, and the Solar System.

Solar System Scope

<https://www.solarsystemscope.com>

Online Safety Reminder

When exploring online, remember:

-  Ask an adult first
 -  Use trusted learning websites
 -  Keep personal information private
 -  Tell an adult if something feels wrong
- Stay curious and stay safe.



Interactive models that help learners compare planet size, distance, and orbit.

Universal Design for Learning Supports

This Curiosity Pack supports different ways of learning by providing flexible choices for engagement, learning, and expression.

Multiple ways to engage

Learners can:

- choose which space comparison to investigate
- focus on planet size, distance, scale, or Solar System organisation
- move between investigating, measuring, drawing, building, and discussing
- take movement or sensory breaks during the lesson
- work independently or with support
- use hands-on materials to explore size and distance in space
- spend more time on parts of the lesson that feel interesting

Multiple ways to learn

Learners can:

- read facts about planets and the Solar System
- watch short videos about space and scale
- explore photographs, diagrams, and scientific models
- compare planet sizes and distances using charts
- use measurement tools to investigate scale
- build, draw, or manipulate representations of space objects
- discuss ideas and discoveries with others

Multiple ways to show learning

Learners can:

- draw and label a diagram
- write notes, facts, or explanations
- create a poster or fact page
- make a comparison chart
- build a model or scale representation
- explain discoveries verbally
- create a digital design or presentation
- record ideas using words, pictures, symbols, or measurements
- complete a Space Scale Project in a way that suits their strengths and interests





Space Explorers: Size, Distance and Scale

Wonder Guide






Welcome Wonder Seeker!

Wonder Seekers explore the world by asking questions and noticing how things work.

Space is much bigger than it appears in pictures.





The planets are different sizes, the Sun is much larger than Earth, and the distances between planets are enormous. Scientists cannot build a real Solar System model, so they use measurements, diagrams, and scale representations to help explain what space is really like.

Scientists use scale to:


-  compare planet sizes
-  show distances
-  understand how objects relate to each other
-  communicate discoveries
-  solve scientific problems

Looking closely at size and distance can help Wonder Seekers understand why scientists use measurement and models when studying space.

During this Wonder Journey, Wonder Seekers may:

-  compare planet sizes
-  investigate the Sun and planets
-  explore distance in space
-  notice patterns and differences




 create a Space Scale Project

Ideas may be shown in many ways:


 drawing

 writing notes

 building a model

 making or crafting

 creating digitally

 explaining ideas aloud

Activities may be completed in order or Wonder Seekers may begin with the part that feels most interesting. Taking breaks, testing ideas, noticing changes, and making discoveries are all part of the Wonder Journey.

Wonder Investigation

Wonder Seekers sometimes learn that objects in the Solar System are very different in size and very far apart.

The Sun is much larger than Earth. Some planets are giant worlds made mostly of gas, while others are much smaller and rocky. The distance between planets is much greater than it appears in diagrams and pictures.


Scientists use measurements, charts, diagrams, and scale representations to help understand how large space really is.


Size and distance can be explored in many ways.

 Some Wonder Seekers investigate by:

- looking at Solar System diagrams
- comparing planet sizes
- examining charts showing distances
- watching short videos about space
- reading facts with help
- talking about what they notice
- comparing objects using measurement
- exploring scale representations


Different ideas may be noticed, such as:

 size of the Sun


 size of planets

 Earth compared to other planets

 distance from the Sun

 size of moons


 objects travelling through space

 When Wonder Seekers investigate, they sometimes keep track of what they notice.



Ideas may be recorded by:

- drawing comparisons
- making a chart
- writing measurements
- creating a fact page
- building a simple representation
- making picture or word cards
- writing notes about patterns

 Some Wonder Seekers notice:

- which planets are largest
- which planets are smallest
- how much larger the Sun is than Earth
- how far apart planets are
- how scale helps explain space
- why diagrams are useful


Looking closely at size and distance can help Wonder Seekers understand how scientists use mathematics and models to explore the Solar System.

Scale Investigation


Wonder Seekers may choose **one space comparison** to investigate closely.

Possible investigations:


 Sun compared to Earth

 largest and smallest planets

 Earth compared to Jupiter

 Earth compared to the Moon


 distance between planets

 planet sizes across the Solar System

Before investigating, Wonder Seekers may spend time looking closely at pictures, diagrams, videos, books, or models.

 Some Wonder Seekers notice:

- which object is larger
- how much larger it is
- how far apart objects are
- how scientists represent these differences
- what happens when scale is used

 Ideas may be recorded by:

- drawing comparisons



- making a chart
- creating labels
- writing facts
- building a representation
- recording ideas digitally

Some Wonder Seekers discover that space is much larger than it first appears.








Wonder Studio


Wonder Seekers now bring their discoveries together.

Scientists often use diagrams, models, measurements, charts, and displays to communicate discoveries. These tools help scientists explain ideas, share information with others, and show patterns that may be difficult to see in real life.

In this activity, Wonder Seekers create something that shows how objects in the Solar System compare to one another and what they discovered about size, distance, and scale in space.








You may create:

-  a poster
-  a fact page
-  a comparison chart
-  a model
-  a scale diagram
-  a crafted display
-  a digital creation

 Before creating, Wonder Seekers may think about:

- Which comparison did you investigate?
- What surprised you?
- Which object was largest?
- Which object was smallest?
- How did scale help?
- What would help other people understand your discovery?

You may include:

-  the Sun
-  planets
-  measurements
-  labels
-  interesting facts
-  charts or comparisons
-  investigation notes



 explanations


There is no single correct way to create.


Different Wonder Seekers may choose different ways to share their discoveries.


Explaining, measuring, comparing, designing, and creating are all part of the Wonder Journey.


Reflection

How did this Curiosity Pack feel?

 Loved it

 Interesting

 Okay

 Challenging

Wonder Seekers may think about:

- Which comparison was most surprising?
- What did you learn about scale?
- How big is space compared to what you expected?
- What would you still like to learn?

You may reflect by:

- talking
- drawing
- writing
- building
- recording a short explanation

