Planetary Science
Teaching Slides, 6.1

Planetary Science Course, 6.1: What's Out There?
Focus question

- What is in the solar system?
Draw solar system model

Draw everything that is in the solar system.
You will make your drawing based on what you already know about the solar system.
You will not use books or computers at this time.
Cosmos cards

Cosmos is another word for the whole universe.

Each of the 36 cards in this deck shows an object that is in the cosmos.
1. In the last investigation, we studied craters on Earth and on the Moon. Are craters found only on Earth and the Moon? Where are some of the other places in the universe that you can find craters?
Consider craters

Sort the cards into two stacks, those with craters and those without craters.

2. What did you find?
3. Where else would you expect to find craters?
Next challenge

Sort the cards on a different feature or characteristic of your choice.
Re-sort Cosmos cards

Re-sort the cards based on distance from the Sun. This sort will require using information on the backs of the cards.

1. What information might be useful for determining the distance?
2. What do you think *orbital radius* means?
### Astronomical unit and light-year

**Teacher masters P, Astronomical Measurements**

<table>
<thead>
<tr>
<th>Astronomical Unit (AU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AU = 150,000,000 km</td>
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One astronomical unit is equal to the average distance from Earth to the Sun.

<table>
<thead>
<tr>
<th>Light-year (ly)</th>
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<tbody>
<tr>
<td>1 ly = 63,000 AU</td>
</tr>
<tr>
<td>1 ly = 9.5 trillion km</td>
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One light year is equal to the distance light travels in 1 year, traveling at 300,000 km per second.
Report results

Divide the lineup of Cosmos cards into three groups, based on distance from the Sun.
Summarize groupings

Objects in the close group exist in the solar system.

Objects in the intragalactic group exist outside the solar system, but are still within the Milky Way galaxy.

Objects in the extragalactic group lie outside our galaxy.
Identify classes of cosmos objects

Notebook sheet 43, Looking at the Cosmos

Looking at the Cosmos

Part 1: Solar system
List the kinds of objects found in our solar system.

Part 2: Milky Way galaxy
List the kinds of objects that exist outside our solar system, but are still in our galaxy.

Part 3: Deep space beyond our galaxy
List the kinds of objects that exist in deep space beyond our galaxy.
Read “The Cosmos in a Nutshell” on page 67.

Planetary Science Course, 6.1: What's Out There?
Step 13
Review vocabulary

Spend a few minutes reviewing the vocabulary for this part. Update the vocabulary index and table of contents in your notebook.

- astronomical unit (AU)
- galaxy
- light-year (ly)
- orbital radius
- solar system
- universe
Answer the focus question

- What is in the solar system?

Revise your drawing and description by correcting and adding features if necessary.
Homework

Select an object or system described in the article—for example, Oort Cloud, black hole, Local Group.

Research this object or system.
**Review notebook entries**

Share your drawing of the solar system with a partner.

Take turns asking questions that help the other partner revise and add to their drawings.