

**Candidate's name:** Trang Nguyen

Grade/Class/Subject:	Grade 4/Science	School:	Imaginary Elementary School
Date:	TBA	Allotted Time:	60 mins
Topic/Title:	The planets of the solar system		

**1. LESSON ORIENTATION**

**Key resources:** [Instructional Design Map](#)

<p><i>Briefly, describe purpose of lesson, and anything else to note about the context of lesson, students, or class, e.g. emergent learning needs being met at this time, elements of focus or emphasis, special occasions or school events.</i></p> <ul style="list-style-type: none"> <li>• This lesson is to introduce the planets in the solar system. Students will be able to name the eight planets in the solar system and identify the order of the planets from the Sun.</li> <li>• The lesson also presents some key facts about planets, highlighting that the Earth rotates on its axis, creating day and night.</li> <li>• Students will participate in a class project to create a scale model of the solar system.</li> <li>• Retrieval practice using a quiz will help students recall what they have learned from the lesson.</li> </ul>
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**2. CORE COMPETENCIES**

**Key resources:** <https://curriculum.gov.bc.ca/competencies>

<b>Core /Sub-Core Competencies</b> <i>(check all that apply):</i>	<i>Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.</i>
<input checked="" type="checkbox"/> COMMUNICATION – Communicating <input checked="" type="checkbox"/> COMMUNICATION – Collaborating <input checked="" type="checkbox"/> THINKING – Creative Thinking <input checked="" type="checkbox"/> THINKING – Critical Thinking <input checked="" type="checkbox"/> THINKING – Reflective Thinking <input checked="" type="checkbox"/> PERSONAL AND SOCIAL – Personal Awareness and Responsibility <input checked="" type="checkbox"/> PERSONAL AND SOCIAL – Positive Personal and Cultural Identity <input checked="" type="checkbox"/> PERSONAL AND SOCIAL – Social Awareness and Responsibility	<p>COMMUNICATION</p> <ul style="list-style-type: none"> <li>• Students will engage in discussions and contribute to group activities</li> <li>• Students will present information and ideas</li> <li>• Students will work together in groups</li> <li>• Students will share and reflect</li> </ul> <p>THINKING</p> <ul style="list-style-type: none"> <li>• Students brainstorm and create ideas</li> <li>• Students will be encouraged to ask questions and conduct research</li> <li>• Students will create models or designs</li> </ul> <p>PERSONAL AND SOCIAL</p> <ul style="list-style-type: none"> <li>• Students will work towards their own learning</li> <li>• Students will plan and use time wisely</li> <li>• Students will learn their values</li> <li>• Students will interact in the group respectfully</li> </ul>

**3. INDIGENOUS WORLDVIEWS AND PERSPECTIVES**

**Key resources:** First Peoples Principles of Learning (FPPL); [Aboriginal Worldviews and Perspectives in the Classroom](#)

<b>FPPL to be included in this lesson</b>	<i>How will you embed Indigenous worldviews,</i>
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<i>(check all that apply):</i>	<i>perspectives, or FPPL in the lesson?</i>
<p><input checked="" type="checkbox"/> Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.</p> <p><input checked="" type="checkbox"/> Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).</p> <p><input type="checkbox"/> Learning involves recognizing the consequences of one's actions.</p> <p><input checked="" type="checkbox"/> Learning involves generational roles and responsibilities.</p> <p><input checked="" type="checkbox"/> Learning recognizes the role of Indigenous knowledge.</p> <p><input checked="" type="checkbox"/> Learning is embedded in memory, history, and story.</p> <p><input checked="" type="checkbox"/> Learning involves patience and time.</p> <p><input type="checkbox"/> Learning requires exploration of one's identity.</p> <p><input type="checkbox"/> Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.</p>	<ul style="list-style-type: none"> <li>• Teaching and learning about the solar system's planets, moons, the sun, and how they can interact and depend on each other can support students to understand the interconnectedness of the community and environment.</li> <li>• Through hands-on activities and fun games using ADST, students are encouraged to make a direct connection with the universe, fostering a sense of wonder and curiosity. Also, students could develop their perception of their place in the world and their responsibilities to the environment and community.</li> <li>• Students will have opportunities to do a craft project manifesting the solar system as a class project, which enhances their involvement in group work. They will learn how to work collaboratively, realizing their roles and responsibilities in a group/community.</li> <li>• They will have retrieval practice through a quiz at the end of the lesson to reflect their understanding about the solar system and share it with their friends and families. It is a way to pass on knowledge and reflect on the roles and responsibilities that come with learning.</li> <li>• The time needed for this unit reminds both teacher and students that learning requires patience and time.</li> <li>• The First Peoples Principles of Learning can be integrated into teaching the solar system to foster a deeper, more meaningful connection to the subject matter, and eventually encouraging students to see the universe through a holistic and interconnected lens.</li> </ul>

#### 4. BIG IDEAS

Key resources: <https://curriculum.gov.bc.ca/> (choose course under Curriculum, match lesson to one or more Big Ideas)

*What are students expected to understand? How is this lesson connected to Big Idea/s or an essential question?*

The motions of Earth and the moon cause observable patterns that affect living and non-living systems.

This lesson provides students with the basic structure and components of the solar system, describing the characteristics of the planets of the solar system.

#### 5. LEARNING STANDARDS/INTENTIONS

Key resources: <https://curriculum.gov.bc.ca/> (choose course under Curriculum)

<b>Curricular Competencies:</b> <i>What are students expected to do?</i>	<b>Content:</b> <i>What are students expected to learn?</i>
<p><b>Questioning and predicting</b></p> <ul style="list-style-type: none"><li>Demonstrate curiosity about the natural world</li></ul> <p><b>Processing and analyzing data and information</b></p> <ul style="list-style-type: none"><li>Identify First Peoples perspectives and knowledge as sources of information</li></ul> <p><b>Applying and innovating</b></p> <ul style="list-style-type: none"><li>Co-operatively design projects</li></ul> <p><b>Communicating</b></p> <ul style="list-style-type: none"><li>Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate</li></ul>	<ul style="list-style-type: none"><li>Local changes caused by Earth's axis, rotation, and orbit</li><li>The effects of the relative positions of the sun, moon, and Earth including local First Peoples perspectives</li></ul>

#### 6. ASSESSMENT PLAN

Key resources: [Instructional Design Map](#) and <https://curriculum.gov.bc.ca/classroom-assessment>

*How will students demonstrate their learning or achieve the learning intentions? How will they know if they are proficient? How will the evidence be collected, documented and shared? Will you use **observations**, have targeted **conversations**, or collect **products**? Mention any opportunities for feedback, self-assessment, peer assessment and teacher assessment. What tools, structures, or rubrics will you use to assess student learning (e.g. Performance Standard Quick Scale)? Will the assessments be **formative**, **summative**, or both?*

Formative assessment:

- Class discussion and participation
- Observing students during work times
- Student teacher check ins
- Student demonstrations
- Peer feedback

Summative assessment:

- A quiz to help students recall learned knowledge. Students will use whiteboards to show their answers.

## 7. DESIGN CONSIDERATIONS

Key resources: [Instructional Design Map](#)

*Make brief notes to indicate how the lesson will meet needs of your students for: differentiation, especially for known exceptionalities, learning differences or barriers, and language abilities; inclusion of diverse needs, interests, cultural safety and relevance; higher order thinking; motivations and specific adaptations or modifications for identified students or behavioural challenges. Mention any other design notes of importance, e.g. cross-curricular connections, organization or management strategies you plan to use, extensions for students that need or want a challenge.*

- This lesson provides a blending of information, activities, and multimedia resources to cater to different learning styles. Students will access the information through both visual and auditory resources.
- Group work: Strong students will be paired with low learners to help each other finish their parts in a class project. If one group is done with their part, they will be encouraged to support other groups to fulfil the model.
- This lesson can be taught along with Art and Math knowledge for students to reinforce their understanding about the solar system.

**Required preparation:** *Mention briefly the resources, material, or technology you need to have ready, or special tasks to do before the lesson starts, e.g. rearrange desks, book a room or equipment.*


Teacher resources:

- Art supplies (for drawing/creating models)
- Videos or websites about the solar system as the following links:
  - ✓ [Planets - NASA Science](#)
  - ✓ [10-Easy-Steps-to-Teaching-The-Solar-System.pdf \(learningresources.com\)](#)
  - ✓ [Make a Model of the Solar System | Lesson Plan \(sciencebuddies.org\)](#)
  - ✓ [Model the Planets of the Solar System | STEM Activity \(youtube.com\)](#)
- Two choices of planet worksheets for students to retain their understanding:
  - ✓ <http://www.teacherspayteachers.com/Product/Daily-Planet-Report-375857?st=cb5ad8943df13d7cb308527245ce>
  - ✓ [https://drive.google.com/file/d/1j656LfyzvCVOYO28cQM8YxHRAX2z9gdy/view?usp=drive\\_link](https://drive.google.com/file/d/1j656LfyzvCVOYO28cQM8YxHRAX2z9gdy/view?usp=drive_link)
- A globe and a flashlight
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## 8. LESSON OUTLINE

Instructional Steps	Student Does/Teacher Does ( <i>learning activities to target learning intentions</i> )	Pacing
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<p><b>OPENING:</b>  <i>e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge</i></p>	<ul style="list-style-type: none"> <li>• Greeting students.</li> <li>• Retrieval practice using a question “Tell me one thing you learned from the previous lesson” to recall learned knowledge about the solar system, the Sun, and moon.</li> <li>• Introduce the topic of the lesson: the planets in the solar system. The solar system consists of the Sun and all the objects that orbit around it, including eight planets.</li> <li>• Briefly inform students about the activities/steps of the lesson including planet facts, a craft project to make a model of the solar system, and a multiple choices quiz.</li> </ul>	<p>5 mins</p>
<p><b>BODY:</b></p> <ul style="list-style-type: none"> <li>• <i>Best order of activities to maximize learning -- each task moves students towards learning intentions</i></li> <li>• <i>Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share learning, ask questions and get feedback</i></li> <li>• <i>Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling</i></li> <li>• <i>Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations</i></li> </ul>	<p><b>Planet facts (25 minutes)</b></p> <ul style="list-style-type: none"> <li>• Ask retrieval questions: <ul style="list-style-type: none"> <li>✓ How many planets does the solar system have?</li> <li>✓ What do you know about each planet of the solar system?</li> </ul> </li> <li>• Present some facts about planets. Use a projector to present planet facts from NASA’s website  <a href="https://science.nasa.gov/solar-system/planets/">https://science.nasa.gov/solar-system/planets/</a></li> <li>• Explain the order of the planets from the Sun by using a mnemonic, such as "My Very Educated Mother Just Served Us Noodles" (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune).</li> <li>• Students can choose one from two kinds of planet worksheets to retain their understanding. <ul style="list-style-type: none"> <li>✓ <a href="http://www.teacherspayteachers.com/Product/Daily-Planet-Report-375857?st=cb5ad8943df13d7cb308527245ce">http://www.teacherspayteachers.com/Product/Daily-Planet-Report-375857?st=cb5ad8943df13d7cb308527245ce</a></li> <li>✓ <a href="https://drive.google.com/file/d/1j656LfyzvCVOYO28cQM8YxHRA X2z9gdy/view?usp=drive_link">https://drive.google.com/file/d/1j656LfyzvCVOYO28cQM8YxHRA X2z9gdy/view?usp=drive_link</a></li> </ul> </li> <li>• Planet facts <ul style="list-style-type: none"> <li>✓ Mercury: Smallest planet, closest to the Sun, very hot during the day and very cold at night.</li> <li>✓ Venus: Similar size to Earth, very thick atmosphere, hottest planet.</li> <li>✓ Earth: Our home, has water and life.</li> <li>✓ Mars: Known as the Red Planet, has the largest volcano and canyon in the solar system.</li> <li>✓ Jupiter: Largest planet, has a Great Red Spot which is a giant storm.</li> <li>✓ Saturn: Known for its beautiful rings made of ice and rock.</li> <li>✓ Uranus: Rotates on its side, has a blue-green color due to methane in its atmosphere.</li> <li>✓ Neptune: Farthest from the Sun, known for its strong winds and deep blue color.</li> </ul> </li> <li>• Interesting fact about Earth’s Rotation and Day/Night:</li> </ul>	<p>50 mins</p>

	<ul style="list-style-type: none"> <li>✓ Use a globe and a flashlight to demonstrate how Earth’s rotation on its axis causes day and night. Darken the room to make this more effective.</li> <li>✓ Have students note how only one side of the globe is lit at a time.</li> </ul> <p><b>Class craft project (25 minutes)</b></p> <ul style="list-style-type: none"> <li>• Use a craft project to create a scale model of the solar system.</li> <li>• Divide the class into 4 groups. Each group will create 2 planets to make a scale model of the solar system.</li> <li>• Each group will have play dough, balloons, metric ruler, cardstock to make labels for the planets, scissors, pen or pencil, and calculator.</li> <li>• Watch the video of how to create a model of the solar system. <a href="https://www.youtube.com/watch?v=JSEhXB07024">https://www.youtube.com/watch?v=JSEhXB07024</a></li> <li>• A sample of the scale model of the solar system:</li> </ul>  <p style="text-align: center;"><small>Image Credit: Sabine De Brabandere, Science Buddies / Science Buddies</small></p> <p style="text-align: center;"><b>Figure 2.</b> Scale model of the eight planets of the solar system.</p> <ul style="list-style-type: none"> <li>• Students can volunteer to recall the positions of the planets in the solar system.</li> </ul>	
<p><b>CLOSING:</b></p> <ul style="list-style-type: none"> <li>• <i>Closure tasks or plans to gather, solidify, deepen or reflect on the learning</i></li> <li>• <i>review or summary if applicable</i></li> <li>• <i>anticipate what’s next in learning</i></li> <li>• <i>“housekeeping” items (e.g. due dates, next day requirements)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Wrap up the lesson by using a quiz to help students recall what they have learned from the lesson. Students will use whiteboards to show their answers, helping the teacher to check their understanding and reflect after teaching the lesson.</li> <li>• Summarize the key points about the solar system and the planets so that students will be able to correct and reinforce their understanding about the solar system.</li> <li>• Inform the topic for next lesson, Moon phases.</li> </ul>	5 mins

**9. REFLECTION** *(anticipate if possible)*

<ul style="list-style-type: none"> <li>• <i>Did any reflection <u>in</u> learning occur, e.g. that shifted the lesson in progress?</i></li> <li>• <i>What went well in the lesson (reflection <u>on</u> learning)?</i></li> <li>• <i>What would you revise if you taught the lesson again?</i></li> <li>• <i>How do the lesson and learners inform you about necessary next steps?</i></li> <li>• <i>Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?</i></li> <li>• <i>If this lesson is being observed, do you have a specific observation focus in mind?</i></li> </ul>
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# Daily Planet Report for \_\_\_\_\_

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Special Edition : \_\_\_\_\_

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Meaning of planets name.

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Description of planet.

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Moons and/or rings.

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Characteristics of the planet.

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Other interesting facts.

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Published by : \_\_\_\_\_

## Five multiple-choice questions about the eight planets in the solar system

1. Which of the following lists the eight planets in our solar system in order from the closest to the farthest from the Sun?
  - A) Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
  - B) Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Mercury
  - C) Earth, Mars, Mercury, Venus, Jupiter, Saturn, Uranus, Neptune
  - D) Jupiter, Saturn, Uranus, Neptune, Mars, Earth, Venus, Mercury
2. Which planet is known as the "Red Planet"?
  - A) Earth
  - B) Jupiter
  - C) Mars
  - D) Venus
3. Which is the largest planet in our solar system?
  - A) Earth
  - B) Neptune
  - C) Saturn
  - D) Jupiter
4. Which planet has a thick atmosphere that traps heat, making it the hottest planet in our solar system?
  - A) Venus
  - B) Mercury
  - C) Mars
  - D) Saturn
5. Which of the following planets have rings around them?
  - A) Mars and Jupiter
  - B) Earth and Venus
  - C) Saturn and Uranus
  - D) Mercury and Neptune

### Answers

1. A) Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
2. C) Mars
3. D) Jupiter
4. A) Venus
5. C) Saturn and Uranus