UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

EDUC 490 LESSON PLAN

Candidate's name: Joni Hesselgrave

Grade/Class/Subject:	Grade 6 Science (5/6 Classroom)	School:	Intermediate
Date:	November 2022 (Practicum)	Allotted Time:	30 minutes x 10-11 blocks
Topic/Title:	Space & Our Solar System		

1. LESSON ORIENTATION

Key resources: Instructional Design Map

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.
The purpose of this unit is to build student knowledge of Space in general, and our solar system in particular, which is part of the Milky Way and one of billions of galaxies. Students will learn where Earth exists within the universe and be introduced to many fascinating components of Space. Students will be able to explain their understanding of our Milky Way galaxy, the planets, and other notable objects within our solar system (asteroids, comets, meteoroids, dwarf planets, stars, and our moon), and the ways in which celestial bodies are connected.

2. CORE COMPETENCIES

Key resources: https://curriculum.gov.bc.ca/competencies

Core /Sub-Core Competencies *(check all that apply):*	*Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.*
☒ COMMUNICATION – Communicating ☒ COMMUNICATION – Collaborating ☐ THINKING – Creative Thinking ☒ THINKING – Critical Thinking ☒ THINKING – Reflective Thinking ☐ PERSONAL AND SOCIAL – Personal Awareness and Responsibility ☐ PERSONAL AND SOCIAL – Positive Personal and Cultural Identity ☐ PERSONAL AND SOCIAL – Social Awareness and Responsibility	**Communicating** encompasses the set of abilities that people use to impart and exchange information, experiences, and ideas; to explore the world around them; and to understand and effectively use communication forms, strategies, and technologies. Communicating provides a bridge between peoples' learning, their personal and social identity, and the world in which they interact. People who communicate effectively use their skills and strategies intentionally to ensure understanding by their audience. They communicate in an increasing variety of contexts, for a variety of purposes, and often with multiple audiences. • **Students will communicate their understanding of the solar system as part of the Milky Way, one of billions of galaxies.** • **Students will communicate their understanding orally (during large and small group discussions and activities), visually (in drawings, diagrams, and models), and in writing (in response to short and long answer questions, as well as in a summative flipbook research project).** • **Students will acquire, interpret, and present information in clear, concise ways.** • **Students will explain, recount, and reflect on the information they receive in this unit.**

	Collaborating involves the skills, strategies, and dispositions that people use to work together to pursue common purposes and accomplish common goals. People who collaborate effectively recognize how combining others' perspectives, strategies, and efforts with their own enhances collective understanding, use, and impact. They value the contributions of group members, interact supportively and effectively using inclusive practices, and strive for shared commitment and mutual benefit. • **Students will collaborate, respectfully and inclusively, to complete oral, visual, spatial, and written tasks.** **Critical and Reflective Thinking** encompasses a set of abilities that students use to examine their own thinking and that of others. This involves making judgments based on reasoning, where students consider options, analyze options using specific criteria, and draw conclusions. People who think critically and reflectively are analytical and investigative, willing to question and challenge their own thoughts, ideas, and assumptions and challenge those of others. They reflect on the information they receive through observation, experience, and other forms of communication to solve problems, design products, understand events, and address issues. A critical thinker uses their ideas, experiences, and reflections to set goals, make judgments, and refine their thinking. • **Students will think critically and reflectively as they question, investigate, analyze, and critique the information they receive in this unit to develop knowledge and understanding of the solar system, part of the Milky Way and one of billions of galaxies.**

3. INDIGENOUS WORLDVIEWS AND PERSPECTIVES

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

FPPL to be included in this lesson *(check all that apply):*	*How will you embed Indigenous worldviews, perspectives, or FPPL in the lesson?*
☒ Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. ☒ Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). ☒ Learning involves recognizing the consequences of one's actions. ☐ Learning involves generational roles and responsibilities. ☒ Learning recognizes the role of Indigenous knowledge. ☒ Learning is embedded in memory, history, and story. ☒ Learning involves patience and time. ☐ Learning requires exploration of one's identity. ☐ Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.	Throughout the lessons, students are encouraged to be patient and kind to themselves as they are learning. Lessons will be delivered via open, non-judgmental group discussions, posited on positive teacher/student and student/student relationships and connections. Ideas and concepts will be learned experientially, through a mixture of explicit instruction, modelling, scaffolded support, practice, and student-doing. Student understanding will be dependent upon their participation in, and attentiveness to, class and group discussions and to the assigned tasks (done in class, with support as needed). Students will explore Indigenous perspectives and knowledge.

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?*
Big Idea: The solar system is part of the Milky Way, which is one of billions of galaxies (Grade 6). **Essential Question:** • What are the relationships between Earth and the rest of the universe? • What is an extreme environment?

5. LEARNING STANDARDS/INTENTIONS

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

Curricular Competencies: *What are students expected to **DO**?*	**Content:** *What are students expected to learn (**KNOW**)?*
Students are expected to be able to **DO** the following: **Questioning and predicting:** • Demonstrate a sustained curiosity about a scientific topic. • Make observations in familiar and unfamiliar contexts. • Identify questions to answer or problems to solve through scientific inquiry. • Make predictions about the findings of their inquiry. **Planning and Conducting** • With support, plan appropriate investigations to answer their questions or solve problems they have identified. • Choose appropriate data to collect to answer their questions. **Processing and analyzing data and information:** • Experience and interpret the local environment. • Identify First Peoples perspectives and knowledge as sources of information. • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data. • Identify patterns and connections in data. • Demonstrate an openness to new ideas and consideration of alternatives. **Evaluating:** • Demonstrate an understanding and appreciation of evidence. **Applying and Innovating:** • Transfer and apply learning to new situations. **Communicating:** • Communicate ideas, explanations, and processes in a variety of ways. • Express and reflect on personal, shared, or others' experiences of place.	Students are expected to **KNOW** the following: • The overall scale, structure, and age of the universe. • The position, motion, and components of our solar system in our galaxy (i.e., planets, moons, asteroids, meteors, comets, etc.). • Force of gravity (i.e., gravity is the force of attraction between objects that pulls all objects towards each other; the greater an object's mass, the greater its gravitational pull, which is why planets orbit the sun and moons orbit planets). • First Peoples perspectives regarding aurora borealis and other celestial phenomena. • Extreme environments including contributions of Canadians to exploration technologies (i.e., Canadarm, Newt Suit, and VENUS and NEPTUNE programs). 

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 the evidence be documented and shared? 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?

Students will achieve the learning intentions and demonstrate their learning by:

- participating in class discussions and activities that explicitly cover, review, and build on the big idea, essential question, and curricular content;
- collaborating with peers to complete scientific inquiries and model activities pertaining to Space, the universe, and our solar system;
- completing written tasks, which they will hand in and share with the teacher, that allow them to express their knowledge and understanding of the unit.

Evidence of student learning will be documented and shared in several ways:

- informally, during class discussions and activities;
- formally, as a score on the comprehension booklet, planet research flipbook (see attached rubric), and unit test (optional).

There will be many opportunities for immediate **formative teacher feedback** during class discussions and activities, and when students are completing their booklets and flipbooks.

Students will perform a **self-assessment** & provide one another with **positive and corrective peer feedback** when they complete the peer editing checklist (prior to submitting their summative assignment – the planet research flipbook).

Summative feedback will be given on the booklet that students hand-in, as well as on their final flipbook projects (see attached rubric) and unit test (optional).

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.

Students within the class will likely be at different levels/stages of knowledge and understanding.

As such, accommodations are offered throughout the lesson to offset the challenges that students will encounter, including:

- a strong focus on vocabulary and scaffolding language to ensure *comprehensible input*;
- explicit teaching and communication of learning (orally, visually, and in writing) to promote understanding;
- teacher-assigned groups (when needed) to ensure students are distributed to pairs that will support their individual needs and who will assist them with the reading, writing, and oral skills required to complete the assigned activities and meet the learning standards/intentions.

Differentiation and Exceptionalities:
Students who struggle extensively with reading and writing will be placed with a partner that can help them read and write responses.

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.*

Prior to beginning this unit:

- Ensure that you have access to the following online resources, Physics & Earth/Space 6, from Nelson Science:
  - Teacher's Resource (TR) - https://k12resources.nelson.com/science/9780176775834/student/ebook_tr/mobile/index.html#p=95
  - Student Resource (SR) - https://k12resources.nelson.com/science/9780176775896/student/ebook/mobile/index.html#p=cover

- Obtain, if possible, a physical copy of the above noted teacher's resource, as well as a class set of the above noted student textbooks. I obtained mine from School District 28's resource contact, Kevin Sturt.

- Go to the Weebly site, *Elementary Ed. Resource Sharing*, and review johntitanic's "Grade 6 Space Unit Plan: Where are we?": https://share.opened.ca/2020/09/01/grade-6-space-unit-plan-so-where-are-we/

- Purchase and review the following TPT resources:
  - *Space, The Universe, & our Solar System,* from Super Simple Sheets: https://www.teacherspayteachers.com/Product/Space-The-Universe-our-Solar-System-BC-Grade-6-Science-Distance-Learning-5150175
  - *Solar System and Planets Research Templates Outer Space Print Digital,* from Teach to Tell: https://www.teacherspayteachers.com/Product/Solar-System-and-Planets-Research-Templates-Outer-Space-Print-Digital-1517248

- Print the vocabulary cue cards from the Teach to Tell resource (above) and display on the classroom's Science bulletin board.

In preparation of Lesson 1…

- Have white copy paper on hand (8.5" x 11")
- Have small slips of paper on hand for Exit Ticket responses.

In preparation of Lesson 2…

- Cover three CDs in tinfoil and label: (1) Milky Way, (2) Andromeda (10 feet away); and Caldwell 5 (44 feet away).
- Ensure to have a whistle on hand.
- Book the gym (if needed) or schedule this lesson at the beginning of a PE block.

In preparation of Lesson 3…

- Gather materials for the gravity demonstration: 2 plastic or fabric sheets, 2 empty buckets, 2 small foam balls, 1 squash ball, 1 baseball, 30 straws, and rope or large elastic bands.
- Lined paper for students to write their observations.
- Small slips of paper for the Exit Ticket responses.

In preparation of Lesson 4…

- Have on hand the Physics & Earth/Space 6 Nelson Science Teacher Resource, as well as a classroom set of the student textbooks.
- Photocopy and have student note-taking sheets ready - "Field Guide to Space" - from Nelson Science.
- Pre-load the following videos on the computer, to be displayed on the Smartboard:
  - How Solar Systems Form: https://www.youtube.com/watch?v=Uhy1fucSRQI
  - Our Solar System: https://www.youtube.com/watch?v=evWeRHMwSu0
- Make paper cut-outs of the planets and label (see page 66 of student book for measurements).
- Ensure that the classroom has a metre stick (to use for measuring the distance between the planets).

In preparation of Lesson 5…

- Have on hand the Physics & Earth/Space 6 Nelson Science Teacher Resource, as well as a classroom set of the student textbooks.
- Photocopy and have student note-taking sheets ready - "Field Guide to Space" - from Nelson Science.
- Pre-load the following videos on the computer, to be displayed on the Smartboard:
    - The Terrestrial Planets: https://www.youtube.com/watch?v=joq-IUFNkrw
    - The Gas Giants: https://www.youtube.com/watch?v=SeC22-94PMw
    - Dwarf Planets: https://www.youtube.com/watch?v=evIsmxM5c7o

In preparation of Lesson 6…

- Have on hand the Physics & Earth/Space 6 Nelson Science Teacher Resource, as well as a classroom set of the student textbooks.
- Photocopy and have student note-taking sheets ready - "Field Guide to Space" - from Nelson Science.
- Pre-load the following videos on the computer, to be displayed on the Smartboard:
    - Asteroids, Comets, and Meteoroids: https://www.youtube.com/watch?v=02wrLS-ue1Q
    - Stars: https://www.youtube.com/watch?v=7zYlWTrp6JE
    - Stars: https://www.youtube.com/watch?v=HEheh1BH34Q
    - Our Moon: https://www.youtube.com/watch?v=f4ZHdzl6ZWg

In preparation of Lesson 7…

- Photocopy enough the following booklet: *Space, The Universe, & our Solar System,* purchased from Super Simple Sheets at: https://www.teacherspayteachers.com/Product/Space-The-Universe-our-Solar-System-BC-Grade-6-Science-Distance-Learning-5150175; ensure you have enough copies so that every student will have their own.
- Have the booklet open on the computer, ready to be displayed on the Smartboard.

In preparation of Lesson 8…

- Continuation of lesson 7.

In preparation of Lesson 9…

- Photocopy the planet research flipbook, *Solar System and Planets Research Templates Outer Space Print Digital,* ensuring that each student will have their own copy. From Teach to Tell at: https://www.teacherspayteachers.com/Product/Solar-System-and-Planets-Research-Templates-Outer-Space-Print-Digital-1517248
- Have the flipbook template open on the computer and ready to display on the Smartboard.

In preparation of Lesson 10…

- Photocopy the self-assessment, peer-assessment, and report-marking rubrics from the Teach to Tell resource (above) – one each per student.

In preparation of Lesson 11 (OPTIONAL)…

- Photocopy the Unit Test from: *Space, The Universe, & our Solar System (*Super Simple Sheets) at: https://www.teacherspayteachers.com/Product/Space-The-Universe-our-Solar-System-BC-Grade-6-Science-Distance-Learning-5150175
- Have the unit test open on the computer, ready to be displayed on the Smartboard.

8. LESSON OUTLINE #1 – Monday (Day 1)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Where are we?" Field answers and encourage students to expand on them. For example, if they say, "Dragon Lake Elementary", ask "Where is Dragon Lake Elementary?, …Where is Quesnel?….Where is BC?,… Where is Canada?", until the conversation eventually arrives in Space.	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Supply students with pieces of white paper & ask them to draw "Space" using what they already know about it (give them 15 minutes to do so). Set visual timer for 15 minutes & circulate to observe, probe student thinking, and formatively assess student understanding. STUDENTS DO: Draw Space, colouring their illustration if they have time. Cross- Curricular Note: This activity speaks to the grade 6 Art Education curricular competency, which encourages students to "create artistic works collaboratively and as an individual using ideas inspired by imagination, inquiry, experimentation, and purposeful play." I DO: When the timer goes, give each student an opportunity to discuss what they have drawn and why (this will provide an idea of what students currently know about Space, allowing both the students and the teacher to track their progress as they move through the unit). STUDENTS DO: Share/discuss their drawings. I DO: Praise students on their efforts and thank them for sharing. Identify any misconceptions and let students know that this unit will help to address any misconceptions they have about Space and our solar system. STUDENTS DO: Listen attentively to their peers and the teacher.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When all students have had a chance to share, distribute a small white strip of paper to each student and tell them that they must complete an Exit Ticket task, writing one thing about Space that they want to learn more about. Students can choose to remain unanimous if they wish or can write their name on their Exit Tickets if they choose. Once students are done, collect their slips of paper, as well as their drawings of Space. Read/address responses. Assure students that we will address many of their interests and inquiries over the course of the next few weeks. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

9. LESSON OUTLINE #2 – Tuesday (Day 2)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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/prior knowledge*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will be exploring the *Big Bang Theory*, which scientists believe led to the formation of the universe!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Bring students to the gym (or any open area with a lot of space). Ask students to come together into one tight group, like the universe existed 14 billion years ago. Then, inform them that they will need to run as fast and as far as they can when I yell "bang" and to not stop until the whistle is blown. I DO: Yell "bang." STUDENTS DO: Run as fast as they can away from the centre. I DO: Blow whistle after 5 seconds. STUDENTS DO: Stop when whistle is blown. I DO: Once students are stopped, point out that the class was once small and dense but is now spread out and dispersed. Tell them that each one of them represents a galaxy. Choose a student and ask the class to gather around them. Provide the chosen student with a CD representing the Milky Way galaxy - our galaxy. Facilitate conversation by asking students: • If our galaxy is the size of this CD, how far away do you think the nearest neighboring galaxy is? Field a few student answers before giving the class the answer (i.e. 10 feet). Using a scale of our Universe, 4 feet is equal to 1 million light years. The nearest neighboring galaxy, **Andromeda**, is 2.5 million light years away. Give another CD to a different student and ask them to stand 10 feet away. • What is a light year? Field a few student answers until you get the answer (i.e. the distance light travels in a year). To give context, tell students that it takes the sun's light 8 minutes to travel to Earth. • How far do you think the next closest galaxy, **Caldwell 5**, is? Field answers before giving the class the answer (i.e. 44 feet - 11 million light years away). Hand student a CD, ask them to stand 44 feet away.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	Say, "Ok, this should give you an idea of how, according to the Big Bang Theory, the universe went from small, dense, and compact, to vastly spread out and dispersed. In a future lesson, we will learn more about how the universe is continuing to grow and spread at an ever-increasing rate." Commend the class on their participation and let them know that we will now transition into PE.	2.5 minutes to wrap up.

10. LESSON OUTLINE #3 – Wednesday (Day 3)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will be looking at the effects of gravity in Space. By the end of today's lesson, you should understand that objects in Space orbit more massive objects because of the forces of gravity. Furthermore, you will understand that the greater an object's mass the greater its gravitational pull. Then, you should be able to use this concept to explain why the planets orbit the sun and why moons orbit planets."	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Facilitate a class discussion around what students know about our solar system by asking the following questions. • What planets do we know? • What causes the planets of our solar system to stay together? • What is gravity and how does it work? STUDENTS DO: Tell me what they know. I DO: Make note of student responses on the board. I DO: Walk student through the following "<u>Gravity Demonstration</u>", including student volunteers in each step of the demonstration. <u>*Materials:*</u> – 2 plastic or fabric sheets – 2 empty buckets – 2 small foam balls – 1 squash ball – 1 baseball – 30 straws – Rope or large elastic bands. <u>*Procedure:*</u> Step 1: Place 2 plastic or fabric sheets over the 2 buckets and tie them down to ensure they are firmly bound around the opening of the bucket like a drum. Step 2: On the tightly bound sheet of bucket #1, place the baseball with a small foam ball next to it. On the tightly bound sheet of bucket #2, place the squash ball with a foam ball next to it.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).

Step 3: Draw this chart on the board and ask students to copy it onto a lined piece of paper (or enlarge and provide a copy – attached).

Inform them that they will be using straws to blow the foam balls away from the larger balls on each sheet. Using their charts, ask them to hypothesize whether it will be harder, easier, or the same to blow the foam ball away from the baseball on bucket #1? Then, ask them whether it will be harder, easier, or the same to blow the foam ball away from the squash ball on bucket #2?

Buckets	Hypothesis	Result
#1		
#2		

Step 4: Using a straw, attempt to blow the foam ball away from the baseball on bucket #1 and off the sheet.

Step 5: Using a straw, attempt to blow the foam ball away from the squash ball on bucket #2 and off the sheet.

Step 6: Ask students to fill out the results of this experiment on their chart. Discuss why it was easier to blow the foam ball away from the lighter ball then the heavier ball. While discussing, provide any students who wish to try a straw so they may experience this demonstration.

Step 7: Relate this to gravity and explain that gravity is the natural mechanism by which things with mass or energy (planets, stars, galaxies) are brought toward one another.

Step 8: Ask students to explain ways that we are currently being affected by gravity? Examples. We are revolving around the sun, the moon impacts our tides, we are stuck on earth due to its gravitational pull.

	Assessment: To identify whether or not the objective of today's lesson was met and/or whether some require further detail or clarification, ask students to write on a piece of paper what they have learned about gravity today. Students should submit their explanation on an Exit Ticket. Alternatively, students could also be provided with the assessment tool presented below at the beginning of the class. This tool would be filled out throughout the lesson and submitted at the end to give the teacher an idea of how their understanding developed. I used to think… And now I know… But I am still wondering…	
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	Once every student has completed their Exit Ticket, say: "You should now have a good grasp of the effects of gravity in Space, understanding that objects in Space orbit more massive objects because of the forces of gravity—that is, the greater an object's mass, the greater its gravitational pull. This explains why planets orbit the sun and why moons orbit planets. We will continue to learn more about this phenomenon as we move through the unit." Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

11. LESSON OUTLINE #4 – Thursday (Day 4)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will be reviewing and expanding upon what we have discussed, modelled, and explored in our Science unit thus far. We will accomplish this by going through this *Nelson Science* textbook (hold it up), which covers our Earth/Space curriculum, and by watching several supplementary videos on Space, the universe, and our solar system. You are encouraged to take notes as we go through the textbook and watch the videos."	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Hand out the "Field Guide to Space" note-taking sheet (explain it) and the Nelson Science textbooks. Ask students to turn to page 106 of the textbook. • The Universe (TR pg. 156-159; SR pg. 106-109) STUDENTS DO: Open their textbooks to page 106. I DO: Using pages 156-159 of the Teacher's Resource, walk students through pages 106-109 of the student textbook. Engage student participation as much as possible, as appropriate. STUDENTS DO: Follow along, take notes, and engage appropriately. **<u>REPEAT for the following textbook sections, stopping to play videos:</u>** • Space (TR pg. 100-105; SR pg. 60-63) • How Solar Systems Form (TR pg. 130-133; SR pg. 82-85) ○ Play video: https://www.youtube.com/watch?v=Uhy1fucSRQI • Our Solar System (TR pg. 106-111; SR pg. 64-67) ○ Play video: https://www.youtube.com/watch?v=evWeRHMwSu0	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the block is nearing its end, praise students on their efforts and tell them that I appreciate their participation. Tell them that we will now be moving to an open space to visualize the size of our solar system. Refer them to the "Try This!" activity on page 66 of the student book. Review the activity and let students know that I have cut the planets to scale (according to the chart), so all we need is the class metre stick (grab it). Collect student books, have the class line up at the door, and proceed to the open space (gym or outside). Perform the activity, as per the text's instructions, having student volunteers hold the paper planets at the measured distances. As a class, reflect on questions 5-7. After reflection, cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

12. LESSON OUTLINE #5 – Monday (Day 5)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will be continuing our journey through the *Nelson Science* textbook and will watch a few more supplementary videos on the terrestrial planets, the gas giants, and the dwarf planets. Again, you are encouraged to take notes as we go through the textbook and watch the videos. This will help you with the unit's summative tasks, which we will begin next week!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Hand out the "Field Guide to Space" note-taking sheets and the Nelson Science student textbooks. Ask students to turn to page 68 of the textbook. • The Terrestrial Plants (TR pg. 112-115; SR pg. 68-71) STUDENTS DO: Open their textbooks to page 68. I DO: Using pages 112-115 of the Teacher's Resource, walk students through pages 68-71 of the student textbook. Engage student participation as much as possible, as appropriate. STUDENTS DO: Follow along, take notes, and engage appropriately. I DO: Play video: https://www.youtube.com/watch?v=joq-IUFNkrw **REPEAT for the following textbook sections, stopping to play videos:** • The Gas Giants (TR pg. 116-119; SR pg. 72-75) ○ Play video: https://www.youtube.com/watch?v=SeC22-94PMw • Dwarf Planets ○ Play video: https://www.youtube.com/watch?v=evIsmxM5c7o	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the block is nearing its end, praise students on their efforts and tell them that I appreciate their collaboration and dedication to the task. Ask students to file their note-taking sheets in their Science binders. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

13. LESSON OUTLINE #6 – Wednesday (Day 6)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will be continuing our journey through the *Nelson Science* textbook and will watch a few more supplementary videos on asteroids, comets, and meteoroids, as well the stars and our moon. Once again, you are encouraged to take notes as we go through the textbook and watch the videos. Remember, this will allow you to complete this unit's summative tasks next week!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Hand out the "Field Guide to Space" note-taking sheets and the Nelson Science student textbooks. Ask students to turn to page 76 of the textbook. • Asteroids, Comets, and Meteoroids (TR pg. 120-123; SR pg. 76-79) STUDENTS DO: Open their textbooks to page 76. I DO: Using pages 120-123 of the Teacher's Resource, walk students through pages 76-79 of the student resource. Engage student participation as much as possible, as appropriate. STUDENTS DO: Follow along, take notes, and engage appropriately. I DO: Play video: https://www.youtube.com/watch?v=02wrLS-ue1Q **REPEAT for the following textbook sections, stopping to play videos:** • Stars (TR pg. 152-155; SR pg. 102-105) ○ Play video: https://www.youtube.com/watch?v=7zYlWTrp6JE ○ Play video: https://www.youtube.com/watch?v=HEheh1BH34Q • Our Moon ○ Play video: https://www.youtube.com/watch?v=f4ZHdzl6ZWg	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the block is nearing its end, praise students on their efforts and tell them that I appreciate their collaboration and dedication to the task. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

14. LESSON OUTLINE #7 – Thursday (Day 7)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will begin the first of two summative tasks for this unit: a booklet that is intended to check your understanding of all the material we have covered thus far!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Display the booklet on the Smartboard and review it, page by page, ensuring students understand the task and my expectations. Let them know that they can work with a partner to complete the task, but that each person must fill in their own booklet. Encourage students to use the Nelson student textbook and their note-taking sheets to help them complete the booklet. I DO: Ask if there are any questions or concerns. STUDENTS DO: Ask questions/raise concerns. I DO: Address student questions and concerns. I DO: Hand out the booklet, one per student. I DO: When everyone is settled, set a timer for the remaining minutes left in the block. Circulate the classroom, monitor off-task behaviour, and support those who are struggling. Observe student conversations, prompt their thinking, provide guidance, and give formative feedback on their thoughts and ideas.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the timer has gone, praise students on their efforts and tell them that I appreciate their collaboration and dedication to the task. Tell students to ensure that their names are on their own booklets (or names if they were given permission to turn in 1 – should only be one or two who were given permission to do this). Then, they can file them in their binders to be completed next block. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

15. LESSON OUTLINE #8 – Monday (Day 8)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, you will finish the first summative task for this unit – the booklet that you started on Thursday, which will allow you to show your understanding of the material we have covered thus far!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Ask students to retrieve their booklets, note-taking sheets, and a pencil from their bins. STDUENTS DO: Get out their booklets, note-taking sheets, and a pencil. I DO: Hand out the Nelson student textbooks for student reference. I DO: Ask if there are any questions or concerns about the booklet thus far. STUDENTS DO: Ask questions/raise concerns. I DO: Address student questions and concerns. Remind them that they can continue to work with their partner, but that everyone must be filling in their own booklet. Let students know that this is the last day to complete the booklet. I DO: When everyone is settled, set a timer for the remaining minutes left in the block. Circulate the classroom, monitor off-task behaviour, and support those who are struggling. Observe student conversations, prompt their thinking, provide guidance, and give formative feedback on their thoughts and ideas.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the timer has gone, praise students on their efforts and tell them that I appreciate their collaboration and dedication to the task. Ask students to ensure that their names are on their booklets (or names if they were given permission to turn in 1 – there should only be one or two who were given permission to do this). Then, they can hand them in to me. I will mark it and get it back to them ASAP. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

16. LESSON OUTLINE #9 – Wednesday (Day 9)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will begin the second and final of the two summative tasks for this unit – a flipbook that will solidify and allow you to show me your understanding of the 8 planets within our solar system!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Display flipbook template on the Smartboard and review it, page by page, ensuring students understand the task and my expectations. Let them know that each person must make their own flipbook. Encourage students to use the Nelson student textbook, as most of the information they will need can be found on pages 68-75 of the book. I DO: Ask if there are any questions or concerns. STUDENTS DO: Ask questions/raise concerns. I DO: Address student questions and concerns. I DO: Hand out the Nelson student textbooks and ask students to get out their pencils. I DO: When everyone is settled, set a timer for the remaining minutes left in the block. Circulate the classroom, monitor off-task behaviour, and support those who are struggling. Provide guidance and give formative feedback on their thoughts and ideas.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the timer has gone, praise students on their efforts and tell them that I appreciate their dedication to the task. Tell students to put their names on their flipbooks before putting them safely in their bins to be completed next block. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

17. LESSON OUTLINE #10 – Thursday (Day 10)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, you will finish the second summative task for this unit – the flipbook that you started yesterday!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Ask students to get out their flipbooks from yesterday and hand out the Nelson student textbooks. I DO: Review expectations and ask if there are any questions or concerns regarding what they need to do in order to finish their flipbooks. STUDENTS DO: Ask questions/raise concerns. I DO: Address student questions and concerns. I DO: When everyone is settled, set a timer for the remaining minutes left in the block. Circulate the classroom, monitor off-task behaviour, and support those who are struggling. Provide guidance and give formative feedback on their thoughts and ideas. I DO: With 10 minutes left, let students know that they should be getting close to finishing their flipbook and should start assembling it (if they haven't already begun doing so). STUDENTS DO: Assemble their flipbooks. I DO: With 5 minutes left, hand out the self and peer assessments. Have students complete the self-assessment first. Then, have students exchange their flipbooks with their table mate and complete the peer assessment.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the timer has gone, praise students on their efforts and tell them that I appreciate their dedication to this task. Remind students to make sure that their names are on their flipbooks and self-assessments, and that whoever did their peer-assessment has written their name on the sheet, along with the name of the person whom they were assessing. Once all names have been verified, they can hand in their flipbooks and assessments to me, as one neat and tidy package ☺ Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

18. LESSON OUTLINE #11 – Friday (Day 11 - OPTIONAL)

Instructional Steps	**Student Does/Teacher Does** *(learning activities to target learning intentions)*	**Pacing**
OPENING: *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*	Cue students that it is time to start Science, referencing the visual schedule. When students are organized, ready, quiet, and have eyes on me, say: "Today, we will have our unit test!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: • *Best order of activities to maximize learning -- each task moves students towards learning intentions* • *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* • *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* • *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Display the unit test on the smartboard and review it with students. Go over test expectations (i.e. put name at the top, eyes on own paper; when finished, hand it in and get a book to read until everyone is done). I DO: Ask if there are any questions or concerns. STUDENTS DO: Ask questions/raise concerns. I DO: Address student questions and concerns. I DO: Ask students to get out a pencil and begin handing out the unit tests, putting them face down on student spots. Once everyone has been handed a test, cue students to flip the test over and begin. I DO: Set a timer for the remaining minutes left in the block. Circulate the classroom and monitor off-task behaviour. STUDENTS DO: Work through the test, keeping eyes on their own paper. When done, hand it in to the teacher and get out a book to read silently at their desk.	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (25 min).
CLOSING: • *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* • *review or summary if applicable* • *anticipate what's next in learning* • *"housekeeping" items (e.g. due dates, next day requirements)*	When the timer has gone, ask students to hand in what they have completed. Praise students on their efforts and tell them that I appreciate their dedication to this task and to all the other tasks in the unit. Let students know that I will mark the test ASAP and hand them back to them for their review. Cue students to move on to the next activity/scheduled task.	2.5 minutes to wrap up.

19. **REFLECTION**

- *Did any reflection <u>in</u> learning occur, e.g. that shifted the lesson in progress?*
- *What went well in the lesson (reflection <u>on</u> learning)?*
- *What would you revise if you taught the lesson again?*
- *How do the lesson and learners inform you about necessary next steps?*
- *Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?*
- *If this lesson is being observed, do you have a specific observation focus in mind?*

*To be completed at the end of each lesson.

Resources for Lesson 1, 2, and 3

These three lessons were adapted from *johntitanic's* "Grade 6 Space Unit Plan: Where are we?", found on *Elementary Ed. Resource Sharing*: https://share.opened.ca/2020/09/01/grade-6-space-unit-plan-so-where-are-we/

Resources for Lesson 4

Nelson Science – Physics and Earth/Space 6, Online Teacher's Resource (TR)
https://k12resources.nelson.com/science/9780176775834/student/ebook_tr/mobile/index.html#p=95

Nelson Science – Physics and Earth/Space 6, Online Student Resource (SR)
https://k12resources.nelson.com/science/9780176775896/student/ebook/mobile/index.html#p=cover

- The Universe (TR pg. 156-159; SR pg. 106-109)

- Space (TR pg. 100-105; SR pg. 60-63)
    - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp60_63.htm

- Our Solar System (TR pg. 106-111; SR pg. 64-67)
    - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp64_67.htm
    - https://www.youtube.com/watch?v=evWeRHMwSu0

- How Solar Systems Form (TR pg. 130-133; SR pg. 82-85)
    - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp82_85.htm
    - https://www.youtube.com/watch?v=Uhy1fucSRQI

Resources for Lesson 5

Nelson Science – Physics and Earth/Space 6, Online Teacher's Resource (TR)
https://k12resources.nelson.com/science/9780176775834/student/ebook_tr/mobile/index.html#p=95

Nelson Science – Physics and Earth/Space 6, Online Student Resource (SR)
https://k12resources.nelson.com/science/9780176775896/student/ebook/mobile/index.html#p=cover

- The Terrestrial Plants (TR pg. 112-115; SR pg. 68-71)
    - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp68_71.htm
    - https://www.youtube.com/watch?v=joq-IUFNkrw

- The Gas Giants (TR pg. 116-119; SR pg. 72-75)
    - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp72_75.htm
    - https://www.youtube.com/watch?v=SeC22-94PMw

- Dwarf Planets
    - https://www.youtube.com/watch?v=evIsmxM5c7o

Resources for Lesson 6

Nelson Science – Physics and Earth/Space 6, Online Teacher's Resource (TR)
https://k12resources.nelson.com/science/9780176775834/student/ebook_tr/mobile/index.html#p=95

Nelson Science – Physics and Earth/Space 6, Online Student Resource (SR)
https://k12resources.nelson.com/science/9780176775896/student/ebook/mobile/index.html#p=cover

- Asteroids, Comets, and Meteoroids (TR pg. 120-123; SR pg. 76-79)
  - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp76_79.htm
  - https://www.youtube.com/watch?v=02wrLS-ue1Q

- Stars (TR pg. 152-155; SR pg. 102-105)
  - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp102_105.htm
  - https://www.youtube.com/watch?v=7zYlWTrp6JE
  - https://www.youtube.com/watch?v=HEheh1BH34Q

- Our Moon: https://www.youtube.com/watch?v=f4ZHdzl6ZWg

Resources for Lesson 7-8

Space, The Universe, & our Solar System, purchased from Super Simple Sheets:
https://www.teacherspayteachers.com/Product/Space-The-Universe-our-Solar-System-BC-Grade-6-Science-Distance-Learning-5150175;

Resources for Lesson 9-10

Solar System and Planets Research Templates Outer Space Print Digital, enough so that each student will have their own copy. From Teach to Tell at: https://www.teacherspayteachers.com/Product/Solar-System-and-Planets-Research-Templates-Outer-Space-Print-Digital-1517248

Resources for Lesson 11 (OPTIONAL)

Space, The Universe, & our Solar System, purchased from Super Simple Sheets:
https://www.teacherspayteachers.com/Product/Space-The-Universe-our-Solar-System-BC-Grade-6-Science-Distance-Learning-5150175;

Additional topics of interest to cover (if time permitted):

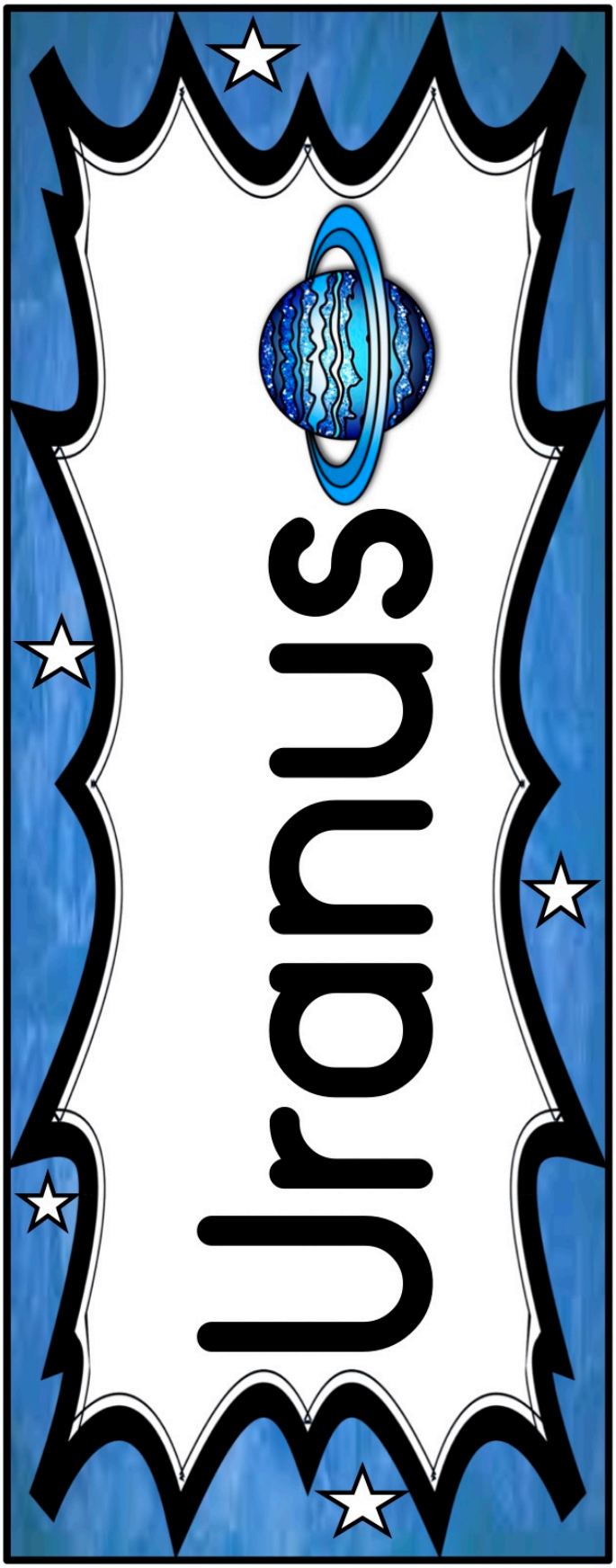
- Benefits of Space Exploration (TR pg. 134-135; SR pg. 86-89)
  - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp86_89.htm
  - https://www.youtube.com/watch?v=EBNwlC75uIo

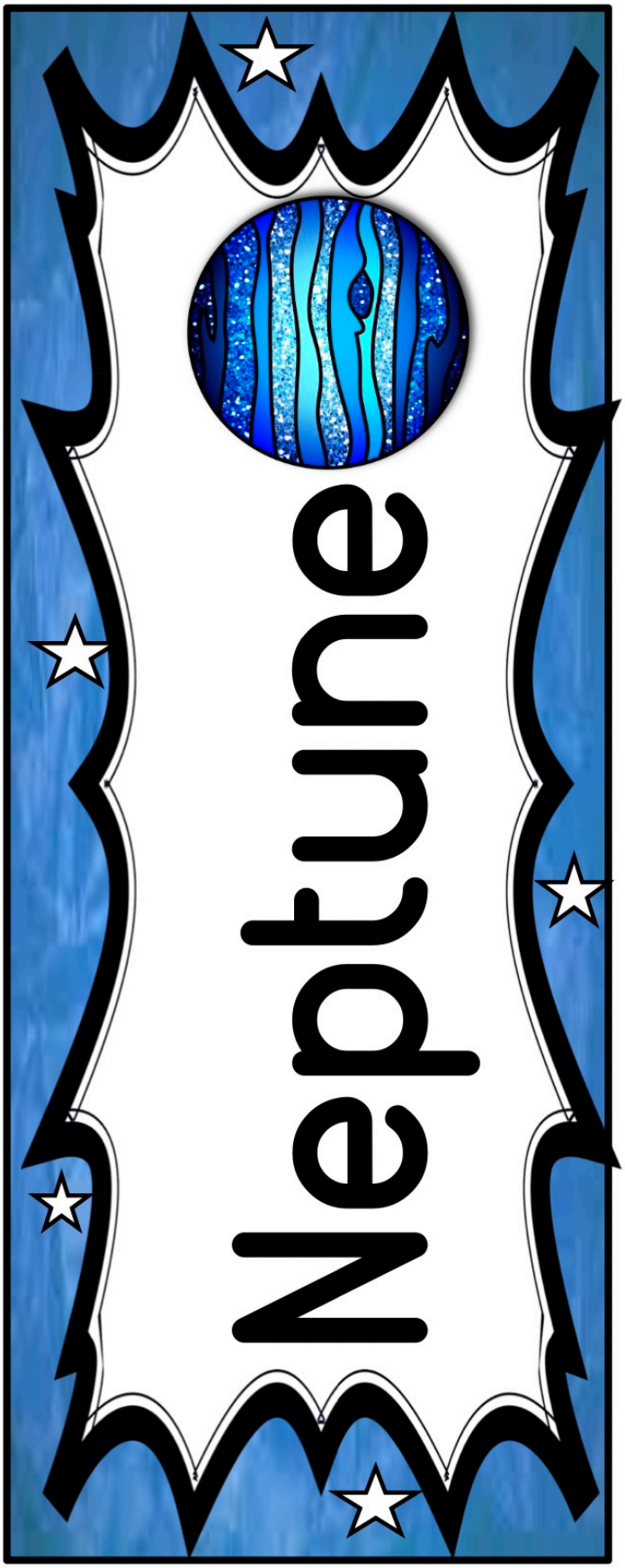
- Challenges of Space Exploration (TR pg. 136-139; SR pg. 90-93)
  - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp90_93.htm

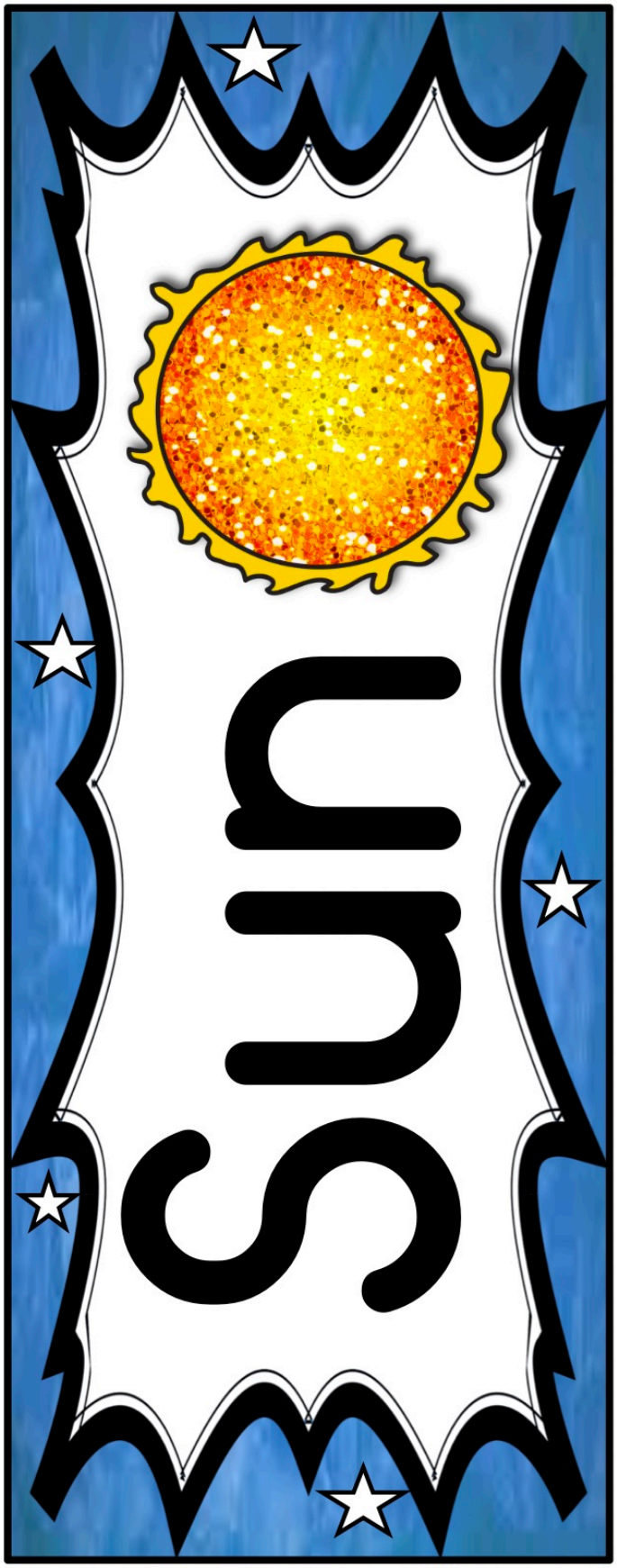
- Extreme Environments (TR pg. 140-143; SR pg. 94-95)
  - https://k12resources.nelson.com/science/9780176775834/student/weblink/nelsci6_u4_pp94_95.htm
  - https://thekidshouldseethis.com/post/how-a-space-suit-works-with-helen-sharman

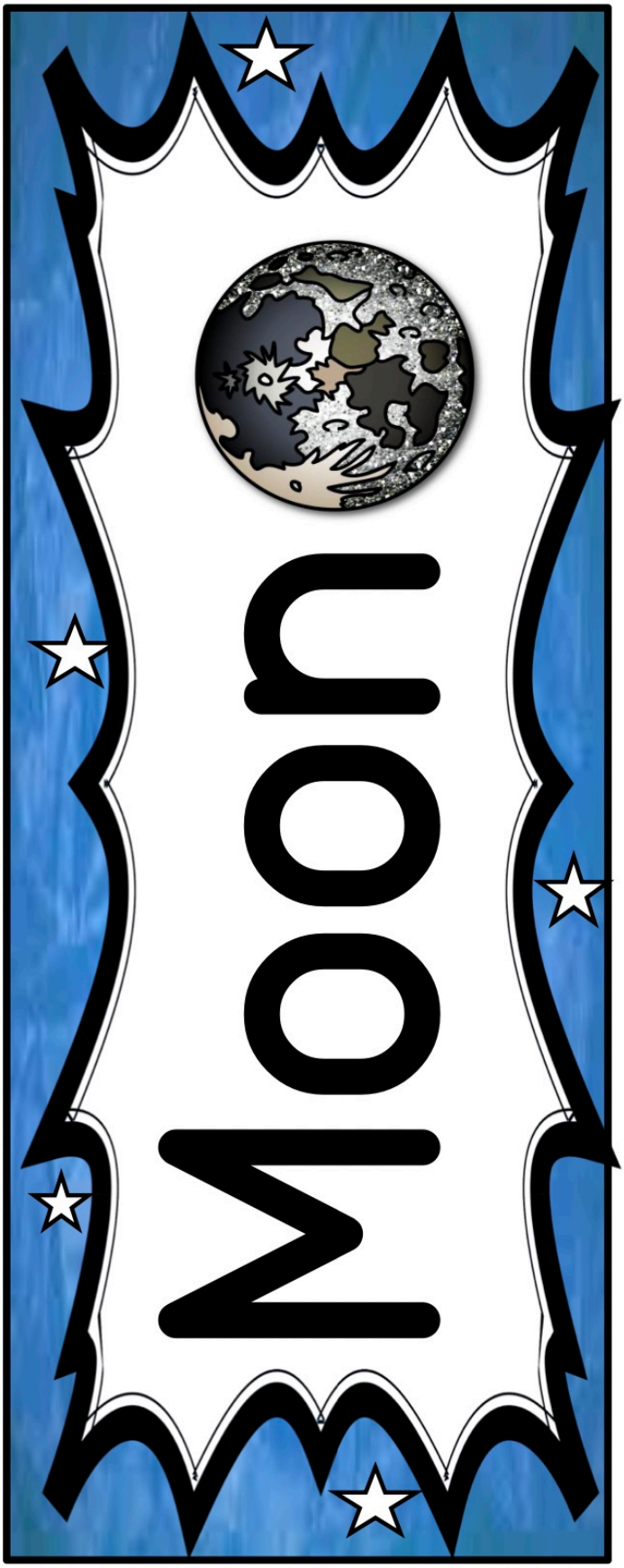
Mercury

Venus









The Planets

The Milky Way

Name: _____ Date: _____

Try This! Observe the Sky

Do *not* look at the Sun, not even briefly. You can cause permanent damage to your eyesight.

1. Go outside and find a comfortable location to lie down with a good view of the sky.

2. Look up at the sky. What can you observe?

3. Think about how the day and night skies differ. What do you predict you would see in this part of the sky at night?

4. Use a star finder app to find out what you would see at night in this part of the sky. Record the information in a sketch.

5. How might what you observe be different if you were at a different location on Earth or if it was another time of the year?

6. Discuss your ideas and findings. Record any new questions you have.

7. How did thinking about what objects are in space affect your experience of place in your local area?

Name:_____ Date:_____

Science Demonstration: Effects of Gravity in Space

Buckets	Hypothesis	Result
#1		
#2		

I used to think…

And now I know…

But I am still wondering…

Name: _____ Date: _____

Try This! How Can We Visualize the Size of the Solar System?

You will need: objects to represent the Sun and planets; metre stick (optional); measuring tape (optional)

A realistic model of the solar system must show the sizes of the Sun and planets, and the distances between them using the *same* scale. In this activity, the scale is 1 m = 5.6 million km.

Object	Size of model	Model distance from Sun
Sun	25 cm	—
Mercury	1 mm	10 m
Venus	2 mm	19 m
Earth	2 mm	27 m
Mars	1.5 mm	41 m
Jupiter	25 mm	140 m
Saturn	21 mm	255 m
Uranus	8.5 mm	515 m
Neptune	8 mm	810 m

1. Go outside and find a location with a large, open space, such as a soccer field.

2. Go to one end of the space. Assemble all the objects you are using. What do you observe?

3. Have a classmate hold the "Sun" at the end of the open space.

4. Walk away from the model Sun to position the planets according to the values in the table. You can use a metre stick or a measuring tape, or estimate distances using one long stride to represent 1 m. Have a classmate hold each planet. Why is it necessary to do this?

5. Stop when you run out of space. How far did you get? Estimate how much more space you need to position the rest of the planets.

Name: _____ Date: _____

Try This! How Can We Visualize the Size of the Solar System? *(continued)*

6. Analyze the data in the Model Distance from Sun column of the table. Identify a pattern relating to the distances between the terrestrial planets and the distances between the gas giants.

7. Communicate your observations about visualizing the size of the solar system to your classmates.

Name: _____ Date: _____

Field Guide to Space

<table>
<tr><td>Specimen or photo:</td><td>Name(s):

Space object: _____

Type of object: _____

When discovered: _____

How viewed: _____</td></tr>
<tr><td colspan="2">Interesting features and latest findings:</td></tr>
<tr><td>General features:</td><td rowspan="5">Labelled diagram</td></tr>
<tr><td>Location:</td></tr>
<tr><td>Size:</td></tr>
<tr><td>Composition:</td></tr>
<tr><td>Surface:</td></tr>
</table>

Name: _____ Date: _____ 2

Key Terms

Define Research the meaning of each of the key terms

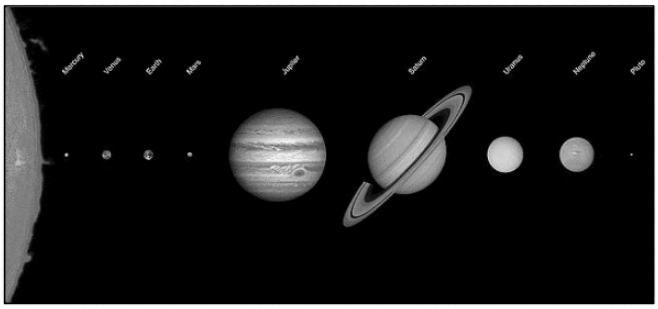
Planets	
Comets	
Asteroids	
Meteors	
Celestial Bodies	
Solar System	

Name: _____ Date: _____ 3

Solar System - Size, Structure, Age

What is a Solar System?

Our **solar system** is the collection of eight planets and their moons in orbit around the Sun. It also includes the smaller bodies in the form of asteroids, meteors, and comets.



Age of the Solar System

Our solar system was formed 4.6 billion years ago. It is believed that 4.7 billion years ago, gravity pulled a cloud of dust and gas together to form our solar system. The massive concentration of dust and gas created a molecular cloud that would eventually form the Sun. With the birth of the Sun, the planets began to form 100 million years later.

Size and Structure of the Solar System

The image above shows the size and structure of our solar system. As you can see, the size of the Earth is tiny compared to the size of Jupiter, Saturn and the Sun. The furthest object that we can see in our solar system is Sedna, which is 143.73 billion km away from the Sun. This means the diameter of the solar system is 287.46 billion km. There are eight planets in our solar system and one sun that each planet orbits around. Earth is the 3rd planet from the sun, or some refer to it as the 3rd rock from the sun.

Questioning What questions do you have after reading the information above?

_____

_____

_____

_____

Questions Use information from the text to support your answer

1. What is our solar system? When was it formed?

_____

_____

_____

2. What is the size of our solar system? Did anything surprise you about the size of the planets?

_____

_____

_____

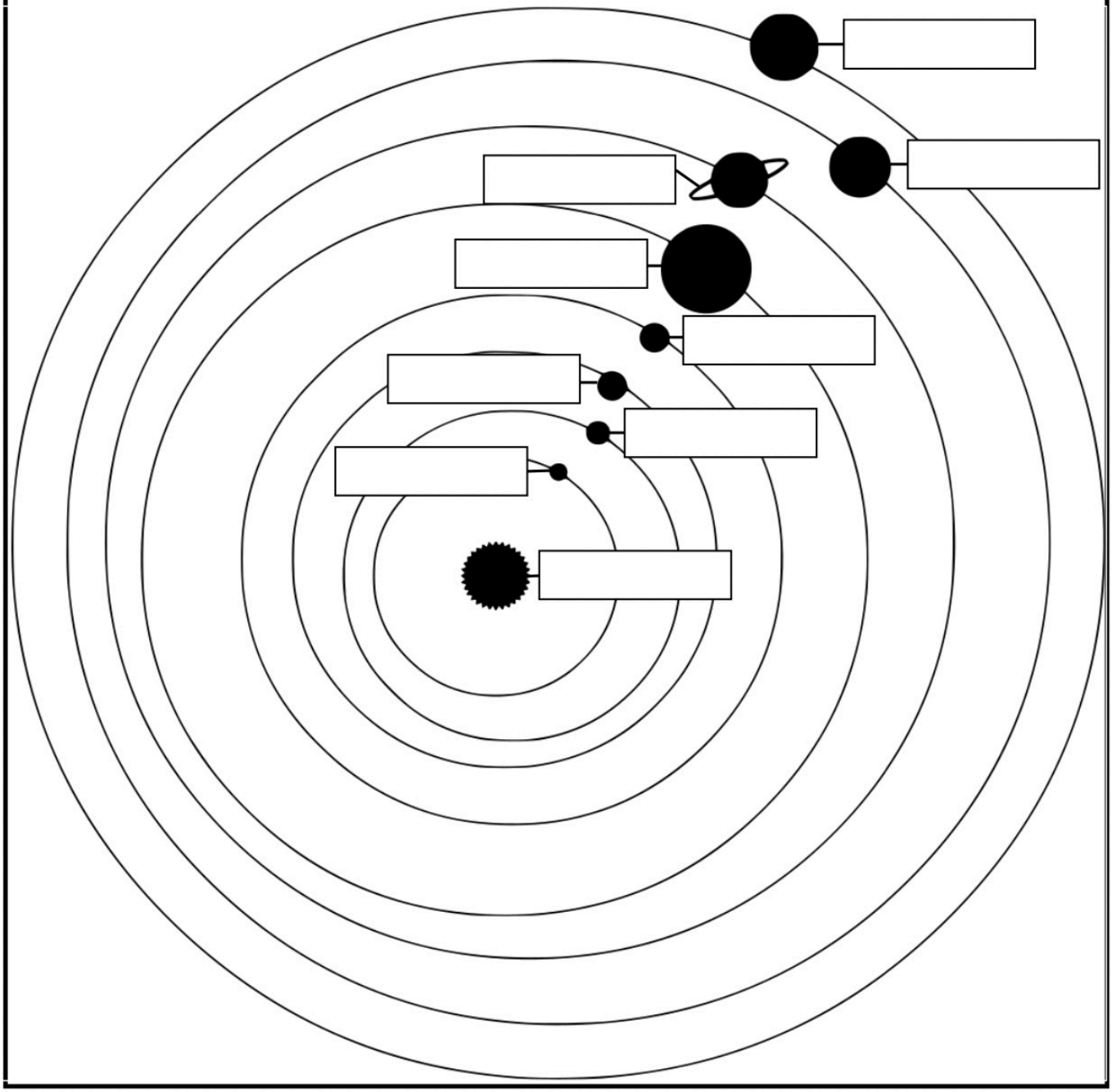
Name: _____ Date: _____ 4

Diagram of our Solar System

Diagram of our Solar System Label the solar system using the word bank

Word Bank

Mercury	Uranus	Earth	Jupiter
Neptune	Mars	Venus	Saturn



Name: _____ Date: _____ 5

Planet Profile - Research Activity

Research! Choose a planet and fill in the information below

1. Name of the planet you chose: _____

2. Draw the planet below. Be sure to draw any moons the planet may have.

Information	Details
Diameter	
Mass	
Moons	
Orbit Period	
Surface Temperature	
How many planets from the sun?	

3. Is your planet habitable for humans? Why or why not?

_____

_____

_____

4. What is the difference between a gas giant planet and terrestrial planet? Which type is your planet?

_____

_____

_____

5. Interesting facts about your planet

_____

_____

_____

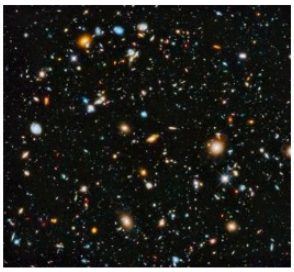
_____

Name: _____ Date: _____ 6

The Universe

What is the Universe?
The **Universe** is everything we can touch, feel, sense, measure, and detect. This means it is everything that is living, planets, galaxies, dust clouds, light, and even time. Before the Universe was created, time, space, and matter did not exist.

What is a galaxy?
A **galaxy** is a massive collection of gas, dust, and billions of stars and their solar systems that are all held together by gravity. We live on the planet Earth, which is a part of our solar system. Our solar system is a small part of the **Milky Way** galaxy. When we look up at night and see the stars, we are seeing the stars in the Milky Way.



The Universe - An Unimaginably Large Entity
This picture was taken by the Hubble Space Telescope. It shows thousands of galaxies as each of the tiny dots are galaxies. Each galaxy has upwards of 100 billion solar systems. Our solar system has 8 planets and one Sun, which means our Milky Way galaxy could have upwards of 800 billion planets and one hundred billion Suns. It is also estimated that there are one hundred billion galaxies in the Universe! That's a lot of solar systems, and a lot of planets!

True or False

Circle whether the statement is true or false

1. Galaxies are larger than the Universe	True	False
2. A galaxy can have upwards of 100 billion solar systems	True	False
3. A solar system has 100 billion planets in it	True	False
4. The universe has 100 billion galaxies	True	False
5. There could be 800 billion planets in our galaxy	True	False

Questions

Use information from the text to support your answer

1. What is the difference between a solar system and a galaxy?

_____

_____

_____

2. How big is the Universe? Explain using the terms: galaxies and solar systems.

_____

_____

_____

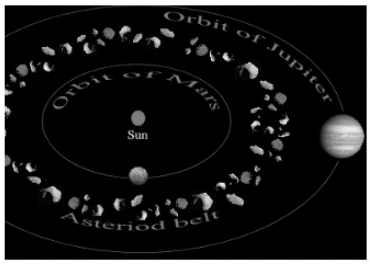
Name: _____ Date: _____ 7

Asteroids and the Asteroid Belt

What is an Asteroid?
An **asteroid** is a chunk of rock and metal in outer space that is in orbit around the Sun. Asteroids are not round, but instead are shaped like potatoes. They vary in size from less than a meter in diameter to hundreds of kilometers across.

Types of Asteroids
There are 3 types of asteroids that are categorized based on which elements make up the asteroid. The main types are carbon, stony, and metallic.

1. **Carbon Asteroids** - made from rocks that are rich in carbon. These asteroids are very dark in colour and make up 75% of all asteroids in the solar system.
2. **Stony Asteroids** - made up of mostly rock and some metal
3. **Metallic Asteroids** - made up of mostly metals, mainly iron and nickel but often have small amounts of stone mixed in.



Asteroid Belt
There are hundreds of thousands of asteroids that form a scattered ring of asteroids that orbit the sun. The asteroid belt is located between the planets Mars and Jupiter. Not all asteroids are in the asteroid belt, however, most of them are and sometimes asteroids are forced out of the asteroid belt by gravity and sent towards the outer solar system instead.

Largest Asteroids
The largest asteroids are so large, they are considered dwarf planets or minor planets. The four largest asteroids are Ceres, Vesta, Pallas, and Hygiea.

True or False Circle whether the statement is true or false

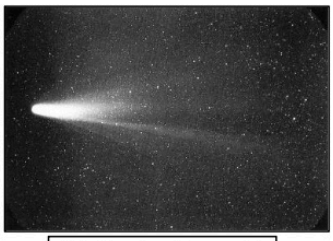
1. An asteroid is always made from rock and stone	True	False
2. Some asteroids are so large, they are considered minor planets	True	False
3. The asteroid belt is between Earth and Mars	True	False
4. Some asteroids are smaller than a meter in diameter	True	False
5. An asteroid will never escape the asteroid belt	True	False

Summarize What is the main idea and supporting details from the reading passage above

Name: _____ Date: _____ 8

Meteors, Meteorites, and Comets

What is a Meteor?
A **meteor** is an asteroid or other object that burns or vaporizes when it enters the Earth's atmosphere. Sometimes asteroids will be on a trajectory to collide with the Earth. This is not dangerous because our atmosphere vaporizes and burns the larger asteroids so that nothing remains. We see this process happening when we see a "shooting star" in the sky. Very rarely, a small piece of the asteroid will survive its journey through the atmosphere and land on the Earth's surface. These pieces are known as **meteorites**. A meteor enters the Earth's upper atmosphere at 15km/s! Meteors can be seen at any time, but it is best to look for them is during meteor showers. These occur around the same dates each year, when the Earth passes through a stream of dust left behind a passing comet.



Halley's Comet

What is a Comet?
A **comet** is a relatively small solar system body that orbits the Sun. They are on the edge of our solar system, beyond the orbit of Pluto. We can see them when they get close enough to the Sun because they display a visible coma (fuzzy tail) of gas and dust. Comets are made of dust, ice, and small rocky particles. **Halley's comet** is the most well known comet because it can be seen by the naked eye every 75 to 76 years. It was last seen on Earth in 1986 and will be visible in 2061 again when it appears in the inner solar system.

True or False

Circle whether the statement is true or false

1. A meteorite is a shooting star - an asteroid burned up completely	True	False
2. A meteor is a piece of meteorite that lands on the Earth's surface	True	False
3. A comet orbits the sun on the outer edge of the solar system	True	False
4. Halley's comet can be seen every 70 years	True	False
5. A comet is most visible when it is near the sun	True	False

Questions

Use information from the text to support your answer

1. What is the difference between a meteor and a meteorite?

_____

_____

_____

2. What is a comet? Why is Halley's comet the most well known?

_____

_____

_____

Name: _____ Date: _____ 9

Canada and Space Exploration

Canada and Space

Canada's contribution to space exploration

Canada is partners with the United States, Russia, Europe, and Japan in the International Space Station (ISS). The ISS is an orbiting research laboratory that was launched in 1998. The ISS circles the globe 16 times per day at the speed of 28,000 km/h. The ISS is about as big as five NHL hockey rinks!

Canadians have contributed many important exploration technologies that different countries use in their space program. Research the technologies below by filling in the table.

Technologies	What are they?
Canadarm	
NewtSuit	
Dextre	

9 Canadians have flown into space. Research the names of the Canadians and write their names below.

1.	6.
2.	7.
3.	8.
4.	9.
5.	

Name: _____ Date: _____ 10

Space - Extreme Environment

Space is one of the most extreme environments imaginable. The spaceships are subjected to extremes temperatures, both hot and cold, and the threat of radiation damage. Each spacecraft that is launched into space deals with many dangerous situations throughout its journey.

1. When the spacecraft is launched, the rocket that sends the spacecraft into orbit will shake violently and it is extremely loud inside the spaceship. The engineers who build the spaceship need to test whether it will hold up under these conditions. To test it, they simulate the conditions of the launch in a laboratory.
2. Temperatures in space can range from extremely cold - hundreds of degrees below freezing to many hundreds of degrees above - especially when the spacecraft goes closer to the Sun. Depending on where in space the spacecraft is going, the engineers will build either cooling systems or heat insulators.
3. The radiation from the Sun can cause the computer technology on the spacecraft to malfunction if the spacecraft is not insulated properly.
4. While in outer space, there is no air and no gravity. You feel nothingness all around you. The space suits astronauts wear protect them from the low pressure in space. If they took off their suit, the low pressure would cause their blood to start to bubble, removing oxygen from the blood and starving the brain of oxygen.
5. Sickness is an issue for people in space. Humans are built to live under conditions with gravity. The feeling of weightlessness due the zero gravity causes symptoms of nausea, vomiting, dizziness, headaches and tiredness. Muscles will break down over time as astronauts do not have to use their muscles against the force of gravity.

True or False

Circle whether the statement is true or false

1. Extreme temperatures go from 0 to hundreds of degrees above 0	True	False
2. Living in space can lead to nausea, headaches, tiredness, and vomiting	True	False
3. Astronauts must wear a space suit to maintain an ideal pressure	True	False
4. Without a space suit, astronauts would freeze to death	True	False
5. Muscle loss is common for astronauts in space	True	False

Questions

Use information from the text to support your answer

1. Why is living in space an extreme environment?

_____

_____

_____

2. What do you think would be the hardest part of being in space?

_____

_____

Name: _____ Date: _____ II

First Peoples Perspective on Space

Aurora Borealis - Northern Lights

The Aurora Borealis is commonly known as the Northern Lights. For the average person, these lights are a phenomenon that travelers from around the world come to see because they are fascinating. For the First Peoples of Canada, these lights are much more. They symbolize some of the teachings and practices of the First Peoples.

Teachings from the Aurora Borealis

1. One teaching that has been passed on from generation to generation is the belief that these lights are spirits of the ancestors celebrating life and reminding us that we are all part of creation.

2. For the First People, dance is very important. When they perform dances during ceremonies, the spirits of their ancestors dance in the heavens. The dancing lights of the Aurora Borealis prove that their ancestors are dancing.

3. The Northern parts of Canada are known to be the land of the bear. The bear has the strong power of healing. It is said that when the bear's healing power is strongest, the Northern Lights will dance in the sky.

Questioning What questions do you have after reading the information above?

_____

_____

_____

_____

Summarize What is the main idea and supporting details from the reading passage above

_____

_____

_____

_____

_____

_____

_____

Name: _____ Date: _____ 12

Space Activities

Word Search

Find the word bank words in the puzzle!

F	X	G	V	P	L	S	S	L	R	D	O	Z	Q	O	P	X	W	P	E
D	C	L	C	O	T	W	I	Y	W	Q	W	V	T	N	T	W	W	W	G
S	O	U	I	A	T	Z	H	J	D	L	B	F	R	E	S	O	L	A	R
Y	R	F	T	V	J	J	J	T	G	V	R	M	N	S	J	A	W	H	P
S	N	O	J	L	Z	O	R	Z	Z	Z	E	A	Q	D	R	S	D	Y	O
T	W	R	S	J	F	U	D	N	D	T	L	I	T	U	Y	M	U	U	W
E	Z	J	U	A	B	Q	R	I	E	P	H	M	C	S	T	D	H	N	V
M	F	Z	G	C	K	J	W	O	O	P	X	W	E	K	I	R	H	S	A
K	S	E	L	H	N	H	R	A	R	R	S	K	C	F	V	H	P	W	B
B	M	Q	H	V	H	I	Q	R	P	M	E	J	A	A	A	K	C	O	P
S	F	O	H	O	T	S	O	O	L	J	G	T	P	I	R	M	X	D	F
R	N	A	T	E	Z	R	Q	R	X	Q	L	U	S	E	G	J	E	W	S
V	H	R	R	U	T	E	W	U	O	A	S	N	O	A	L	N	D	M	N
Q	I	M	A	N	O	O	M	A	S	E	R	I	M	G	J	V	Y	W	W
M	P	X	E	N	E	Y	K	S	Q	Z	T	V	B	G	K	D	M	R	K
R	F	Z	Q	D	C	O	M	E	T	D	L	E	J	X	T	H	D	O	V
G	H	D	O	C	W	M	O	A	A	Y	C	R	M	Q	G	I	K	Z	N
S	X	A	D	Z	F	J	J	V	H	R	R	S	T	Z	R	X	B	D	S
W	O	G	K	B	F	E	H	F	B	O	R	E	A	L	I	S	J	R	P
U	M	J	M	P	I	R	U	A	X	R	Y	O	N	W	V	R	R	U	O

Word Bank

Space
Solar
System
Planet
Asteroid
Meteor
Comet
Meteorite
Moon
Gravity
Aurora
Borealis
Universe
Earth
Orbit
Star
Sun

Word Scramble

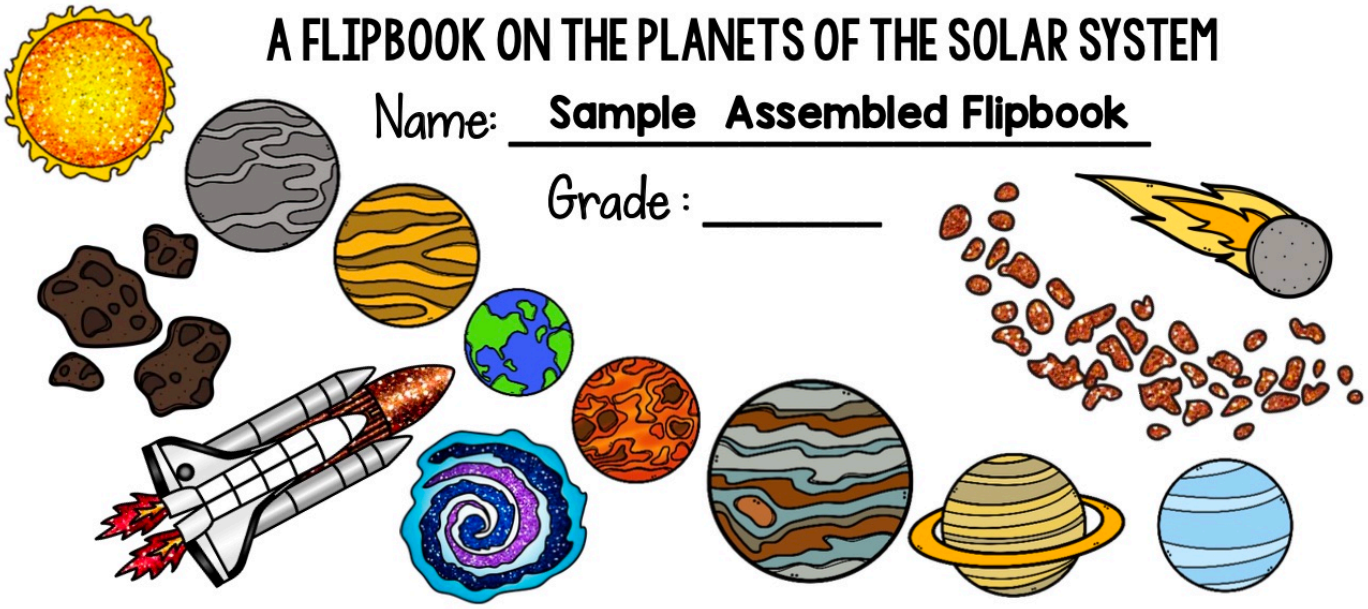
Read the clue and then unscramble the word

RMEETO	_____	An asteroid that enters the Earth's atmosphere
IRTBOS	_____	Each planet does this around the sun
SDOERAIT	_____	Part of a belt between Jupiter and Mars
EMOCT	_____	Found on the edge of the solar system
TOTEERIEM	_____	These are found rarely on the Earth's surface
RIGYATV	_____	There is less of this on the Moon and in Space

A FLIPBOOK ON THE PLANETS OF THE SOLAR SYSTEM

Name: **Sample Assembled Flipbook**

Grade : _____



MERCURY Named after the Roman Messenger God

VENUS Named after the Greek Goddess of Love and Beauty

EARTH An Old English/German Name that means 'Ground'

MARS Named after the Roman God of War

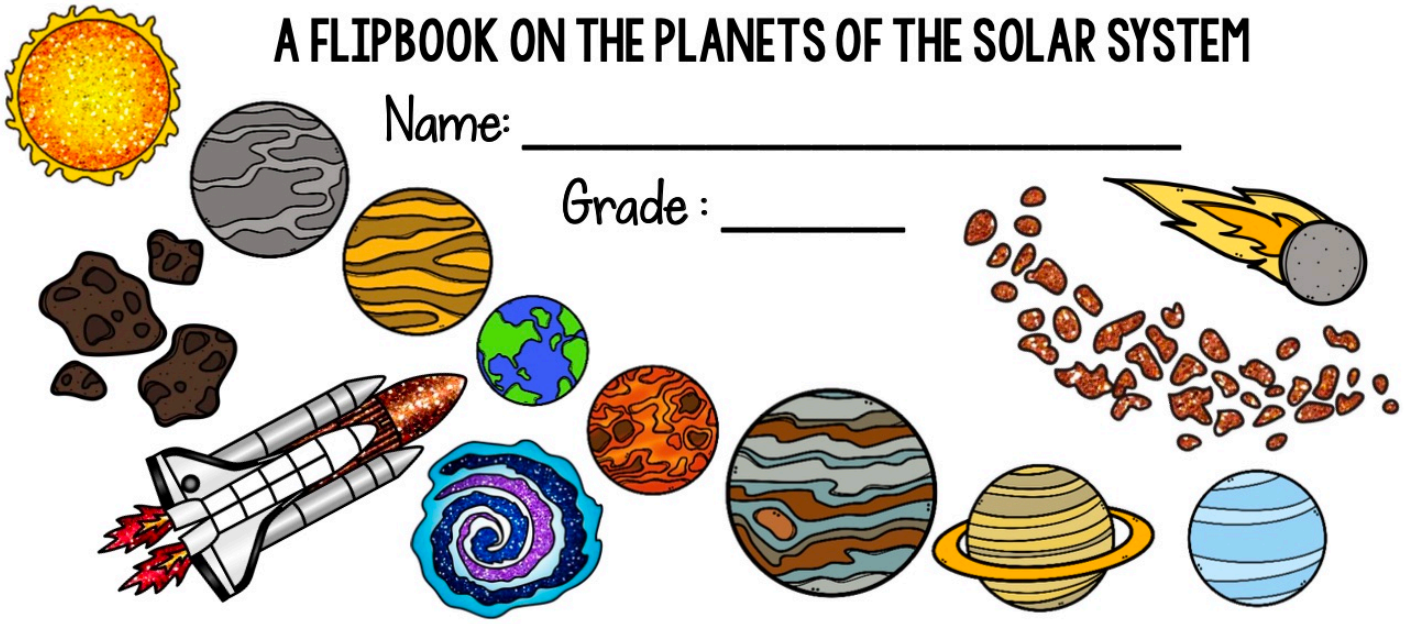
JUPITER Named after the Roman Sky God Jupiter

SATURN Named after Saturnus the God of Harvest

URANUS Named after the Greek Sky God Ouranos

NEPTUNE Named after the Roman God of Water

A FLIPBOOK ON THE PLANETS OF THE SOLAR SYSTEM



Name: _____

Grade : _____

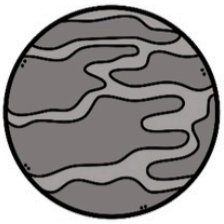
RESEARCH

Write about each planet's distance from the sun, average surface temperature, and number of moons. Also give information on how the planets got their name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue cover here



MERCURY

Named after the Roman Messenger God

RESEARCH

Write about Mercury's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue Mercury here

VENUS Named after the Greek Goddess of Love and Beauty

RESEARCH

Write about Venus's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue Venus here

EARTH

An Old English/German Name that means 'Ground'

RESEARCH

Write about Earth's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue Earth here

MARS

Named after the Roman God of War

RESEARCH

Write about Mars's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue Mars here

JUPITER

Named after the Roman Sky God Jupiter

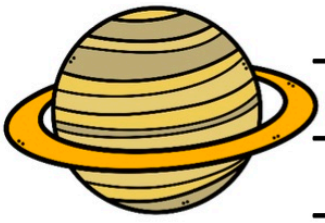
RESEARCH

Write about Jupiter's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

ASSEMBLY

1. Fill up the templates with information on the planets.
2. Cut on the solid horizontal line.
3. Arrange from largest to smallest or vice versa.
4. Attach/glue at top tab.

Glue Jupiter here



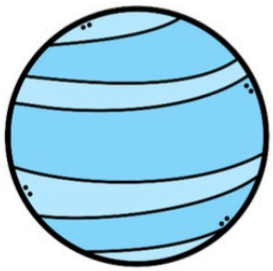
SATURN

Named after Saturnus the God of Harvest

RESEARCH

Write about Saturn's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

Glue Saturn here



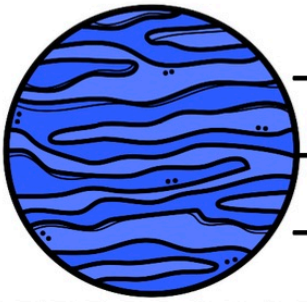
URANUS

Named after the Greek Sky God Ouranos

RESEARCH

Write about Uranus's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

Glue Uranus here



NEPTUNE

Named after the Roman God of Water

RESEARCH

Write about Neptune's distance from the sun, average surface temperature, and number of moons. Also give information on how it got its name and some key interesting facts.

The Planets Informational Report Checklist: Self Editing

Author: _____ Grade: _____	✓ or X
TEXT STRUCTURE: INTRODUCTION AND FACTS ABOUT THE TOPIC	
I have provided information on each planet's distance from the sun, average surface temperature, and number of moons.	
I have provided information on how each planet got its name.	
I have provided information on other key interesting facts specific to each planet.	
LANGUAGE FEATURES: GRAMMAR, MECHANICS, AND SPELLING	
I have used suitable technical words to provide information on the planets.	
I have made an attempt to use a fair variety of interesting sentences.	
Most of my words are spelled correctly.	
All my sentences begin with a capital letter and end with the correct end mark.	

My view on compiling this Report in terms of the collection and presentation of facts:

_____

_____

_____

_____

What I probably need to improve on:

_____

_____

_____

_____

The Planets Informational Report Checklist: Peer Editing

Author: _____ **Edited by:** _____	✓ or X
TEXT STRUCTURE: INTRODUCTION AND FACTS ABOUT THE TOPIC	
The research report provides information on each planet's distance from the sun, average surface temperature, and number of moons.	
The research report provides information on how each planet got its name.	
The research report provides information on other key interesting facts specific to each planet.	
LANGUAGE FEATURES: GRAMMAR, MECHANICS, AND SPELLING	
The reporter has used suitable technical words to provide information on the planets.	
The reporter has used a fair variety of interesting sentences.	
Most of the words are spelled correctly.	
All sentences begin with a capital letter and end with the correct end mark.	

My feedback on this Report in terms of the collection and presentation of facts on the subject:

_____

_____

_____

_____

My suggested areas for Improvement:

_____

_____

_____

_____

INFORMATIONAL REPORT MARKING RUBRIC: THE PLANETS

Name: _____ Grade: _____

CRITERIA	4 MARKS	3 MARKS	2 MARKS	1 MARK	SCORE
Research Information	Comprehensive research on the planets. All information well elaborated with significant details.	Commendable research on the planets. All/most information well elaborated with interesting details.	Fair research on the planets. Most information elaborated with relevant details.	Limited research on the planets. Further information in key areas required.	
Scientific Vocabulary	Relevant use of scientific vocabulary to provide information on the planets.	Fair use of scientific vocabulary to provide information on the planets.	Satisfactory use of scientific vocabulary to provide information on the planets.	Some attempt to use scientific vocabulary to provide information on the planets.	
Flipbook Parts	All parts of the research flipbook on the planets adequately completed.	Most parts of the research flipbook on the planets adequately completed.	Some parts of the research flipbook on the planets adequately completed.	Little attempt to complete parts of the research flipbook on the planets.	
Sentence Structure	All or most sentences are accurate and express precise meaning.	Some sentences are accurate and express precise meaning.	Few sentences are accurate and express precise meaning.	Sentences are weakly constructed and convey little or no meaning.	
Presentation	Overall presentation is commendable. Writing is neat and legible with no major errors.	Overall presentation is effective. Writing is neat and legible with no/few errors.	Overall presentation is fair. Writing is satisfactory. Few errors observed.	Work needs to be presented neatly. Writing must be legible. Many errors observed.	
			Final Score out of 20		

Comment: _____

_____

_____

_____

_____

Name: _____ Date: _____

Unit Test - Space

Multiple Choice /6

1. Which planets are beside the Earth? a) Mars and Jupiter b) Mercury and Mars c) Venus and Mars d) Jupiter and Venus	2. When was our solar system formed? a) 5 million years ago b) 4.6 billion years ago c) 100 million years ago d) 5.4 billion years ago
3. Which planet is **not** a terrestrial planet? a) Jupiter b) Mercury c) Earth d) Mars	4. Which planet is **not** a gas planet? a) Neptune b) Jupiter c) Saturn d) Mercury
5. What is a piece of rock that makes it all the way to the Earth's surface? a) Asteroid b) Meteor c) Meteorite d) Comet	6. Halley was the name of which of the following a) Asteroid b) Meteor c) Meteorite d) Comet

Definitions (1 marks each) **/4**

Term	Definition (what does it mean)
Comet	
Asteroid	
Meteor	
Solar System	

Short Answer Questions (2 marks each) /6

1. What is the First People's perspective on the Aurora Borealis (Northern Lights)?

_____

_____

2. What is the Asteroid Belt? Where is it located?

_____

_____

3. How has Canada contributed to space exploration? Which technologies have they invented/innovated?

_____

_____

_____

Long Answer Questions **/5**

Write about one planet in our solar system. Include the following information: gas or terrestrial, size, moons, temperature, how many planets from the sun and whether it is habitable for humans.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____