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*This Grade 6 scientific inquiry will take at least 10 sessions and will teach students about **extreme environments** in our solar system. It integrates the arts, ADST and Core Competencies while students create puppet-aliens and/or puppet space explorers!

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Guiding Questions

How do healthy choices influence our physical, emotional, and mental well-being (PHE 6)?

What is an extreme environment (Science 6)?

How can we express & reflect on personal, shared, or others' experiences of place (Science 6)?

How can we keep ourselves healthy and stay active, manage stress and express a sense of personal well being? (Personal Awareness). What techniques for using images, sounds and text can we use to communicate information, settings, ideas and story? (ADST 6)

How do Applied Design Skills and Technology (ADST) projects that embrace **Design Thinking** foster growth mindset, creativity, innovation and problem-solving?

Know: (content)
Applied Design

Define: ID constraints & create

Designs

Ideate: Choose a design to

pursue

Prototype: Outline plan &

acquire tools

Test: & gather peer feedback

Applied Skills

Use materials, tools, and technologies in a safe manner, and with an awareness of the safety of others, in both physical and digital environments

Applied Technologies

Demonstrate a willingness to learn new technologies as needed

Understand: (Big Ideas)

Skills are developed through practice, effort, and action.
The choice of technology and tools depends on the task.

Do: (Personal Awareness Core Competency Facets)

Well Being:

Recognize personal responsibility for one's happiness and have strategies that help you find peace in challenging situations.

Self Regulating:

Persevere in difficult situations, and understand how one's actions affect oneself and others.

Self Advocating:

Students who are personally aware and responsible have a sense of self-worth and a growing confidence in a variety of situations.

They are able to express their needs and seek help when needed, find purpose and motivation, act on decisions, and advocate for themselves.



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INSTRUCTIONAL MODEL (5E)



Day 1: Exploring our Solar System.

Engage: (interest piqued, prior knowledge assessed). Our job for this inquiry topic is to EXPLORE our solar system, UNDERSTAND the extreme environments on different planets and IMAGINE technology that would help us explore and exist on our solar system's planets & moons & COMMUNICATE what you imagine using puppets and cardboard structures! (This lesson was partially inspired by Jim Henson's <u>PIGS IN SPACE!</u>) https://youtu.be/SNOwK-wXgYO

Show Exploring Our Solar System: <u>Planets and Space for Kids</u> (<u>https://www.youtube.com/watch?v=Qd6nLM2QlWw</u>)

Cut up and put the names below (including the other 7 planets, Pluto, an asteroid and 7 moons) into a basket. In pairs, assign duos to research the **harsh environment** of their celestial body. Have pairs brainstorm what they **KNOW** about their celestial body's environment as a formative assessment in the K column of their worksheet. Refer to Know-Wonder-Learn [KWL] worksheet on the last page of this lesson.

Have them write questions or what they **WONDER** in the W section.

Mercury	Venus	Apophis	Mars	Jupiter
Saturn	Neptune	Pluto	Moon	Phobos
Deimos	Europa	Enceladus	Ganymede	Titan

Days 2-6: Harsh Environments in our Solar System % National Geographic

<u>Click this link</u> to work through the next 5 activities (a series of National Geographic Lessons) to specifically focus on teaching students about <u>Environmental Conditions in our Solar System</u>. You can also find the lessons here:

https://www.nationalgeographic.org/lesson/environmental-conditions-our-solar-system/ In short, these lessons are:

- 1. Extreme Weather on Earth (30 min) https://www.nationalgeographic.org/activity/extreme-weather-on-earth/
- Extreme Weather in our Solar System (45 min)
 https://www.nationalgeographic.org/activity/extreme-weather-on-earth/
- 3. Measuring Weather (30 min) https://www.nationalgeographic.org/activity/measuring-weather/
- 4. Space Probes (30 min) https://www.nationalgeographic.org/activity/space-probes/
- Design a Space Probe (50 min) https://www.nationalgeographic.org/activity/design-a-space-probe/

At the end of each daily lesson, Ensure students keep notes of new **LEARNINGS** on the KWL sheet.



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Day 7: What could survive the harsh Environment?

(30-40 minutes)

Revisit the WONDER section of the KWL Chart. Ask students how life might exist on/near their celestial body. You might prompt the discussion with, "I wonder if humans could live on your celestial body. I wonder if you are able to imagine the features of an undiscovered life form that could survive on your celestial body? What might your space probe discover? Create a labelled drawing that shows what your being might look like. What special features might they have to survive the harsh environment? Would they have a rigid skeleton or a body without bones? Would they be round or long? Why? Tentacles or legs? How many eyes (if any)? What colour would they be, given the atmosphere/surface conditions?

Got a group that's stuck for ideas? Google-Image-Search Jim Henson's Alien Muppets.

Day 8: Making a Felted Puppet Alien Species

(2-4 hours)



>> Watch Moneca's Felt Puppet Video, <u>here</u>!

Use your drawing from yesterday to create a felted puppet of the species your probe discovered. Supplementary <u>DIY puppet videos (% Jim Henson)</u> can be found <u>here</u>:

https://www.youtube.com/watch?v=AC440k6iByA

OPTIONAL: To learn more about the <u>history of Marionnettes</u> like Moneca's, watch <u>this!</u> <u>https://www.pbs.org/video/antiques-roadshow-bonus-footage-the-history-of-making-marionettes/</u>

Day 9: Sometimes the Harsh Environments are within.

(30 minutes)

Sometimes we face pressures, stresses and fears in our lives that are hard to cope with. Sometimes we can't tell the difference between fear and danger.

<u>Watch this YouTube (or read this story)</u> - The Darkest Dark - written by Canadian Astronaut Chris Hadfield and Kate Fillion. https://www.youtube.com/watch?v=-wKcsyHIsOQ</u> Discussion:

- What are some things Chris was afraid of?
- What are you are afraid of?
- What's the difference between danger and fear?
- How do you cope with your fears?

Watch <u>this TED Talk</u> by Chris Hadfield (<u>What I learned from Going Blind in Space</u>) and discuss his final point: "Why does he say, 'No Fear'?" <u>https://youtu.be/Zo62S0ulqhA</u>

OPTIONAL: This song by Chris Hadfield further reinforces the message that our fears (the dark) can be scary when we don't understand them. Planning for tricky situations, having coping strategies and relying on your friends can help you see that the dark has a beauty of it's own. https://youtu.be/nGg30p1UNVI



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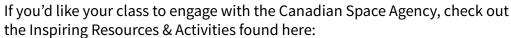
Day 10: Puppets for Personal Awareness

(1 hour)

Join with another duo and create a puppet show that teaches your classmates a coping strategy that helps you cope with "the darkest dark" (fear of the unknown, fear of spiders, etc).

Day 11: To infinity! And Beyond!

Connectivist Extension Activities



https://www.asc-csa.gc.ca/eng/resources-young/default.asp

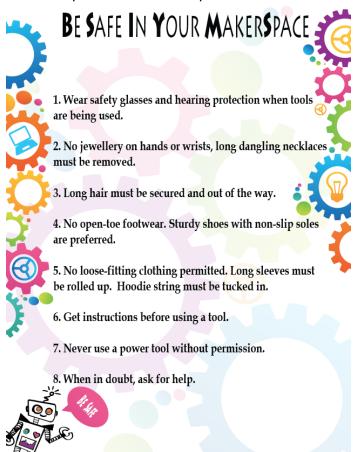
You could even do experiments with the <a>Space Station!

https://asc-csa.gc.ca/eng/resources-young/space-classroom/default.asp

SAFETY REMINDERS

Introduce expected behaviours poster for hand tools









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Explain: (students communicate what they have learned).

Core Competency reflections: Assign one or more to individuals or groups. Reflections could take the form of a checklist, a recorded reflection, a written paragraph, etc.



Creative Thinking Competency Discussion/Writing Prompt:

Tell me about how you got your idea for your Felt Puppet.

I can get new ideas or build on or combine other people's ideas to create new things within the constraints of a form, a problem, or materials.

- I can get new ideas to create new things or solve straightforward problems.
- My ideas are fun, entertaining, or useful to me and my peers, and I have a sense of accomplishment.
- I can use my imagination to get new ideas of my own, or build on other's ideas, or combine other people's ideas in new ways.
- I can usually make my ideas work within the constraints of a given form, problem, or materials if I keep playing with them.

Profile 2 (curriculum.gov.bc.ca)



Critical Thinking Competency Discussion/Writing Prompt:

Tell me about any skills that made you S-T-R-E-T-C-H today. What was new/challenging?

I can ask questions and consider options. I can use my observations, experience, and imagination to draw conclusions and make judgments.

- I can ask open-ended questions, explore, and gather information.
- I experiment purposefully to develop options.
- I can contribute to and use criteria.
- I use observation, experience, and imagination to draw conclusions, make judgments, and ask new questions.
- I can describe my thinking and how it is changing.
- I can establish goals individually and with others.
- I can connect my learning with my experiences, efforts, and goals.
- I give and receive constructive feedback.

Profile 3 (curriculum.gov.bc.ca)



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Collaboration Competency Discussion/Writing Prompt:

Tell me about the way you and your partner shared resources, ideas and jobs.

I contribute during group activities with peers and share roles and responsibilities to achieve goals.

- I take on different roles & tasks. I work respectfully & safely in our shared space.
- I express my ideas & help others feel comfortable to share theirs so that all voices are included.
- I work with others to achieve a common goal & can evaluate group processes and results.

Profile 3 (curriculum.gov.bc.ca)



Communication Competency Discussion/Writing Prompt:

Tell me about the different ways you communicated with each other. Did you talk? Model? Draw? Listen? Question? Who did what?

I communicate clearly and purposefully, using a variety of forms appropriately.

- I share my ideas and try to connect them with others' ideas.
- I am an active listener I make connections and ask clarifying and extending questions when appropriate.
- I can plan ways to make my message clear and engaging for my audience and create communications that focus on a variety of purposes and audiences.
- I acquire the information I need for specific tasks and for my own interests and present it clearly.

Profile 4 (curriculum.gov.bc.ca)



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Personal Awareness Competency Discussion/Writing Prompt:

Tell me about what is stressful and how you cope with your "darkest dark".

I can make choices that help me meet my wants and needs and increase my feelings of well-being. I take responsibility for my actions.

- I can take action toward meeting my own wants and needs and finding joy and satisfaction and work toward a goal or solving a problem.
- I can use strategies that increase my feeling of well-being and help me manage my feelings and emotions.
- I can connect my actions with both positive and negative consequences and try to make adjustments; I accept feedback.
- I make decisions about my activities and take some responsibility for my physical and emotional well-being.

Profile 3 (curriculum.gov.bc.ca)



Social Awareness & Responsibility Competency Discussion/Writing ot:

How do you think a puppet show help other people cope with their fears?

I can take purposeful action to support others.

- I can build relationships and be a thoughtful and supportive friend.
- I can identify ways my actions and the actions of others affect my community and the natural environment.
- I look for ways to make my classroom, school, community, or natural world a better place and identify small things I can do that could make a difference.
- I demonstrate respectful and inclusive behaviour in a variety of settings, and I recognize that everyone has something to offer.

Profile 4 (curriculum.gov.bc.ca)



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Evaluate: (assess student understanding)

Students can self-assess their current state of being by highlighting any applicable statements on the **Core Competencies**, above.

Questions? Connect with Elaine McEachern for support or to collaborate on how we can combine classrooms & harness the power of collaboration.

Here is a visual that summarizes the lesson:









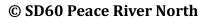






Question \rightarrow connect to text \rightarrow Youtube \rightarrow make it \rightarrow reflect on competencies \rightarrow extend thinking.

Template Downloaded from curriculum.gov.bc.ca (Used with permission from Sarah McQuillan. Excerpted from Masters Thesis: Instructional Tools to Support the Implementation of BC's Redesigned Curriculum)
Lesson developed by Elaine McEachern.





KWL

NAME OF CELESTIAL BODY:		

NAMES OF GROUP MEMBERS: WONDER **LEARNED KNOW**