

Grade 3 Science Curriculum Links to Sustainability Education and Action

Topic A: Rocks and Minerals

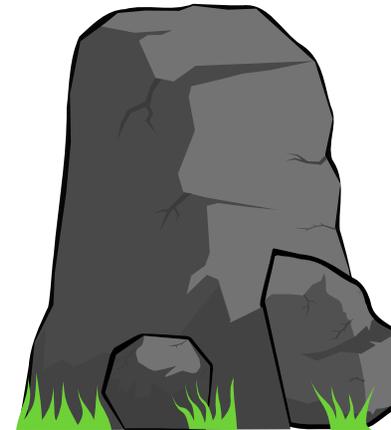
Demonstrate knowledge of materials that comprise the Earth's crust, and demonstrate skill in classifying these materials.

Links to Place and Nature

- What kinds of rocks are found in a nearby natural area? How were they formed?
- What materials make up soil in my schoolyard?
- What is the connection between rocks and soil (i.e. the rock cycle work)
- What rock types make up notable landforms in my area?

Links to Indigenous Perspectives

- What kinds of rocks were traditionally used by Indigenous peoples in my area, and for what purpose? Where did these rocks come from and how were they formed?
- What local landforms are significant to Indigenous peoples in my area and why are they significant?



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Topic B: Building with a Variety of Materials

Use, safely, a variety of tools, techniques and materials in construction activities. Construct structures, using a variety of materials and designs, and compare the effectiveness of the various materials and designs for their intended purposes.

Links to Place and Nature

- What kinds of materials can we use to build a shelter?
- What materials do birds use to build nests?

Links to Indigenous Perspectives

- See [Learn Alberta grade 3 sample lesson plan \(1\)](#) for this unit.
- How were different traditional Indigenous homes built and how did their designs and materials make them stable and offer shelter from the elements?

Links to Climate Change

- How does climate change affect how we build our homes and other structures?

Links to City of Calgary Environmental and Climate Strategies

- **Climate Resilience Strategy (2):** In Calgary, we can expect more high intensity storm events, heavier winter storms, more heat waves and high wind events due to climate change (p. 65-72). The City of Calgary is preparing for these events by strengthening our city infrastructure (roadways, rail, water infrastructure, etc.) to account for these climate projections (p. 81). In some cases, natural materials (trees, wetlands, forests, green roofs) can provide the same essential services as many engineered materials (e.g. water purification and storage, flood protection, climate regulation), but have additional benefits such as the ability to self-adapt to climate change, store carbon, and improve in quality as they age (rather than degrade), and provide ecosystem habitat (p. 85).



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Topic C: Testing Materials and Designs

Evaluate the suitability of different materials and designs for their use in a building task.

Links to Place and Nature

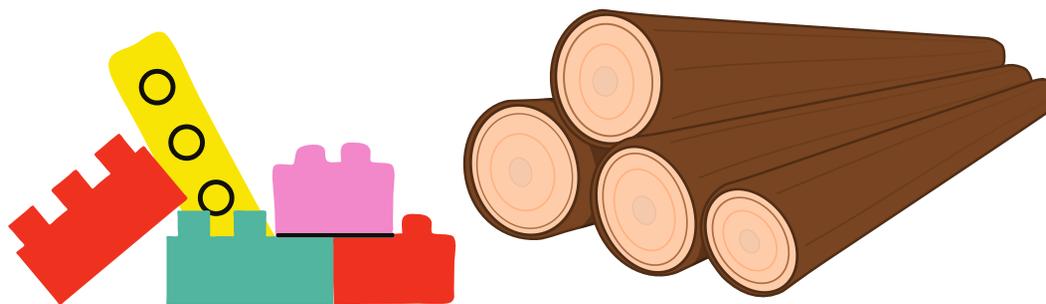
- Which materials work best for different parts of a shelter? Of a bird's nest?

Links to Indigenous Perspectives

- How did Indigenous peoples in my area use different materials and designs for building things? Where did these materials come from and how were they used?
- What was the significance of the different designs used?

Links to City of Calgary Environmental and Climate Strategies

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Topic D: Hearing and Sound

Describe the nature of sound, and demonstrate methods for producing and controlling sound.

Links to Place and Nature

- What sounds can be heard in my schoolyard or neighbourhood? Which sounds are natural or unnatural? Which sounds are pleasant or unpleasant?
- Why do birds sing?
- How do animals use sound to survive?

Links to Indigenous Perspectives

- How was sound important to Indigenous peoples for sharing knowledge through stories, dance and song? For hunting or survival?



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Topic E: Animal Life Cycles

Describe the appearances and life cycles of some common animals, and identify their adaptations to different environments.

Links to Place and Nature

- What plants and animals are found in my schoolyard, community or nearby natural area?
- What are their life cycles?
- How do these life cycles allow them to adapt to their environment?

Links to Indigenous Perspectives

- How was Indigenous knowledge of animals developed and passed on from one generation to the next?
- How are different animals interconnected?
- How are Indigenous peoples connected to different animals? How were they affected by their life cycles?
- What was the significance of different animals to local Indigenous communities?
- How do Indigenous peoples honour different animals?
- How are the **7 sacred teachings (4)** related to animals and what does each one teach us?



Links to Climate Change

- How will the food needs or developmental stages of animals be affected by climate change?
- What actions can I take to help protect animals in my community?

Links to City of Calgary Environmental and Climate Strategies

- **Climate Resilience Strategy (CRS)(2):** Local climatic changes that may impact animal life cycles (p.65-72):
 - More snow in winter
 - Less rain in summer
 - More heat waves
 - Increased average annual temperature
 - More intense summer storms
 - Multi-year drought
 - Increase in pests, diseases, and invasive species due to changes in seasonality
 - Spring will arrive earlier, Summer will last longer, Fall will arrive later, and Winter will be shorter
- This will have impacts on the lifecycles of species in nature that depend on each other, for example birds migration patterns being altered, and pollinators emerging before plants are ready to be pollinated (see pages 66 and 67 of the CRS for more detail). By reducing greenhouse gas emissions, we can reduce the severity of impacts that climate change will have on plant and animal lifecycles. For example, by:
 - Conserving energy at school and at home (p. 36)
 - Using renewable energy (p. 38)
 - Walking to school (p. 43)
 - Planting trees and natural vegetation to absorb carbon (p. 51)
- **The City of Calgary's Nature Explorations programs (3)** provide environmental education and nature experience for students in preschool to Grade 12.



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References

- (1) Alberta Education. (2020). Sample Lesson Plans: Science. Retrieved from LearnAlberta <http://www.learnalberta.ca/content/fnmilp/science.html>
- (2) City of Calgary. (2018). Climate Resilience Strategy: Mitigation & Adaptation Action Plans [PDF]. Retrieved from <https://www.calgary.ca/content/dam/www/uep/esm/documents/esm-documents/climate-resilience-plan.pdf>
- (3) City of Calgary. (2020). School Programs. Retrieved from <https://www.calgary.ca/csps/parks/programs/school-programs/school-programs.html>
- (4) Empowering the Spirit. (2020). Seven Sacred Teachings. Retrieved from <http://empoweringthespirit.ca/cultures-of-belonging/seven-grandfathers-teachings/>

