

Biology

Kindergarten – Plants

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A framework for Inquiry

Significant Content: A focus on important knowledge and concepts derived from standards. Students should find the content to be significant in terms of their own lives and interests.

A need to Know: Activate learner curiosity. Engage student interest and initiate questioning with an entry event: this could be a story, a video clip, a photograph...

A Driving Question: A question that captures the heart of the inquiry in clear, compelling language, giving students a sense of purpose and challenge.

Authentic Purpose: Establishing an authentic purpose for the tasks we invite our learners to explore, enriches learning opportunities.



Voice and Choice: Guided by the teacher, learners have voice and choice in terms of design, what resources they will use and how they structure their time.

Revision and reflection: Learners go through a process of seeking feedback from their peers to think in-depth about their inquiry. Students learn that revision and reflection are frequent features of real-world work.

In-depth Inquiry: Learners follow a trail that begins with their own questions, leading to a search for resources and the discovery of answers and ultimately leads to generating new questions, testing ideas and drawing their own conclusions.

21st Century Competencies: Collaboration, communication, creativity, critical thinking, problem solving and social responsibility.

Adapted from: Larmer, J. & Harganahalli, J. (2012). *Essentials for project-based learning*.

Suggested Ways to Engage Students in Science Inquiry:

What are the features of plants? (A Need to Know)

Using the **see through viewer** provided in the kit, plant seeds and make observations of the basic plant features. Draw and label the parts.

Go outside and view your school garden or plants in your local area. Look at and describe the plant features. Compare features on a variety of plants. Adopt a tree or plant for the year (seasonal tree) and visit throughout the year to notice changes.

Using *Growing Up Wild* (order from your library), focus on the *Looking at Leaves* activity.

Through dramatic role play, issue the following challenges: how a plant grows, what happens during a drought or no rainfall, a windy day, at night, a hurricane, no sun for a long time (winter dormancy). i.e. sunflowers and sunflower fall over in the wind, move to the light source, break if not enough support. These are good plants to grow and use for kids to model.

How do the different features of plants help them meet their basic needs? (In-depth Inquiry)

Distinguish the jobs of each plant feature by looking at a variety of books contained in the kit. You can also do a variety of plant experiments to test their basic needs. Plant given light vs. plant with no light ~ observe changes over time. Plant given water vs. plant with no water ~ make observations

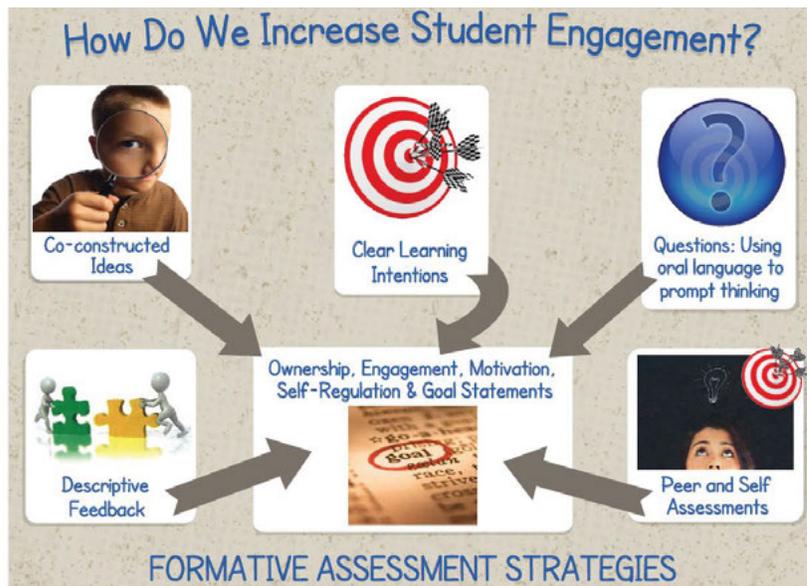
Using *Growing Up Wild*, focus on *Show Me the Energy* activity.

What do the basic needs of plants and animals have in common? (Authentic Purpose)

Use a *Venn Diagram* (use two hoola hoops or paper diagram) to compare a plant and an animal's basic needs.

What are your basic needs? (food, water, shelter and space) (A Need to Know)

Use a *Venn Diagram* (use two hoola hoops or paper diagram) to compare human needs to plant and animal needs.



Suggested Ways to Embed Assessment *for* Learning Strategies:

I can observe and draw plants in local environments.

Using an *I Wonder Journal*, draw and label a variety of plants observed in local environments.

I can observe, draw and interpret the uses of each plant feature.

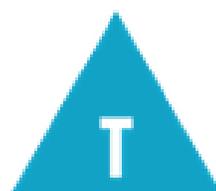
Draw diagrams of plants and their features. Have students talk about and/or label what each plant feature does (i.e. roots take in water, leaves take in sunlight).

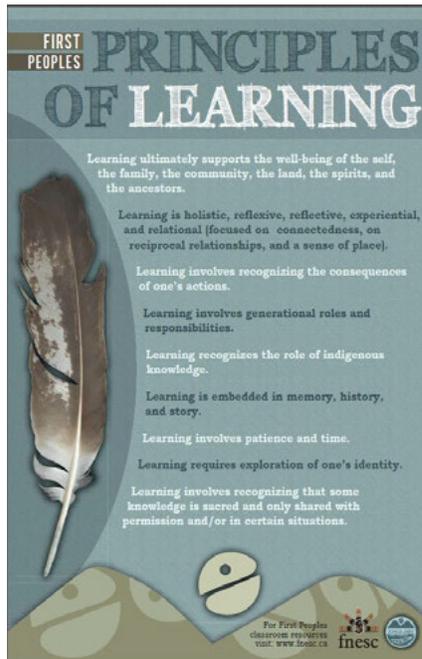
I can explain the basic needs of plants and animals.

Have students grow plants and keep them alive. You could also experiment with putting plants in the dark, not watering, etc. and notice the changes. Using their Journal, students could draw and record their observations and things they might wonder.

I can represent observations and ideas by drawing.

Complete the *Science Learning Map* (teachers' resource binder) to compare yourself with plants.





Suggested Ways to Weave Aboriginal Ways of Knowing within this unit:

Aboriginal knowledge of local plants and uses of plants.

Use native plant cards contained in kit. Go on a nature walk and identify plants native to your area. This could be done with a local elder or someone from the aboriginal education department.

Go on a walk to a local area where there are salal and blackberries. You could then make jam together as described in the lesson below.

<http://www3.sd71.bc.ca/School/abed/resources/staffresources/elementary/Pages/Recipe-For-Salal-and-Blackberry-Jam.aspx>



Other Resources

<http://www.learn71.ca/plants/>

[education.com](http://www.education.com)

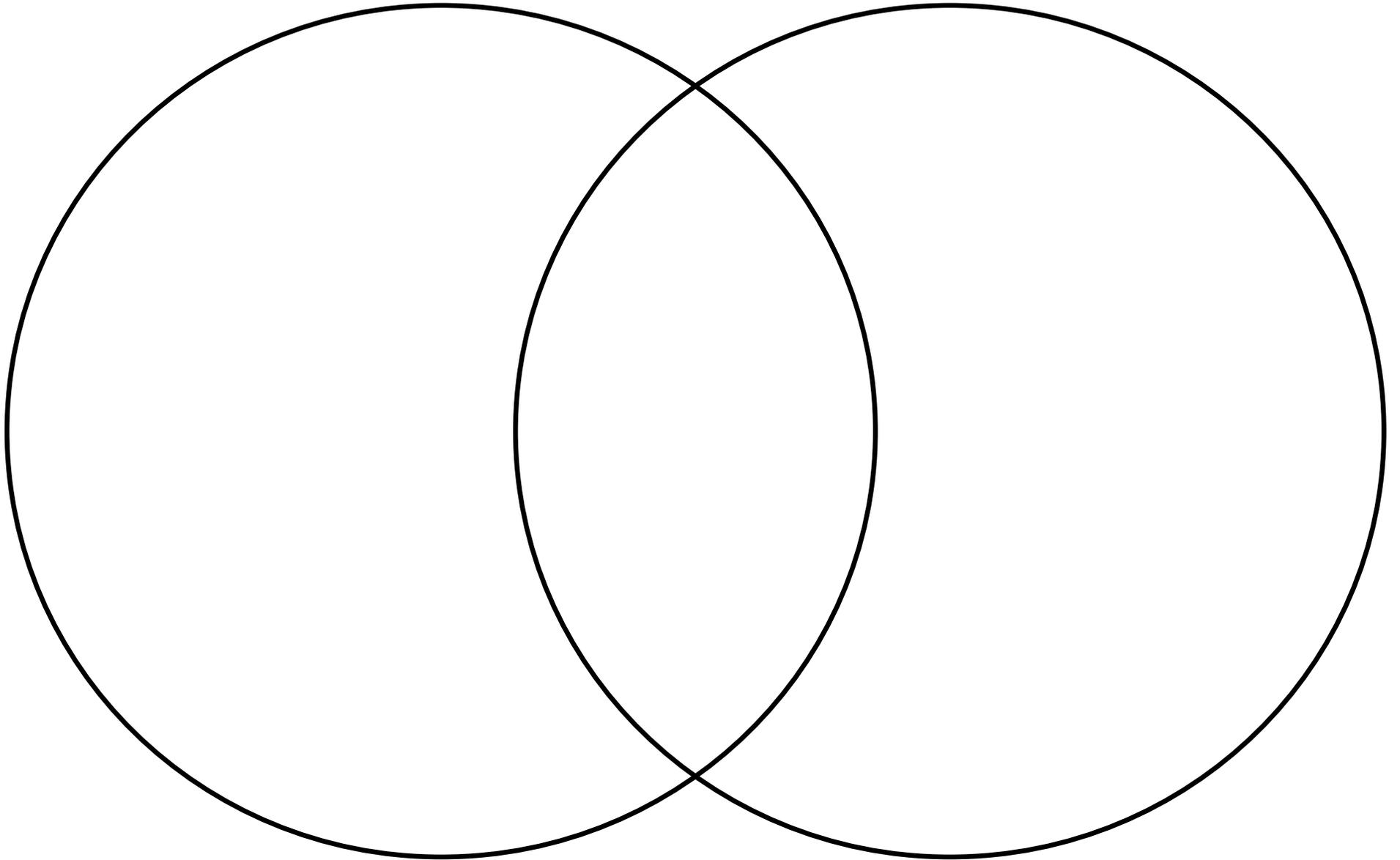
A sight filled with hands on activities and resources for teachers. Some great ideas here!

[sesamestreet.org](http://www.sesamestreet.org)

A website filled with short video clips to engage children in scientific thought processes such as experimenting, observing, recording. There are also educator resources and parent resources.



Venn Diagram





Building Inquiry: How does collaboration help us create and problem solve?

I can do this **independently**.

I can do this **with guided support**.

I can do this **with direct support**.

Learning Target

Evidence

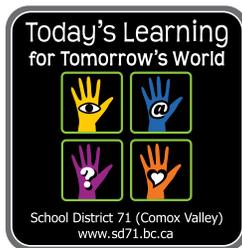
I can share my ideas with my team.

I can listen to others' ideas.

I can make my group feel comfortable (smile at them, use kind words, act like I want to work with them).

I can work with my group to get the job done.

I can explain the purpose of our project.



An electronic copy of this teacher guide can be found on Learn71 at <https://portal.sd71.bc.ca/group/wyhzgr4/Pages/default.aspx>

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