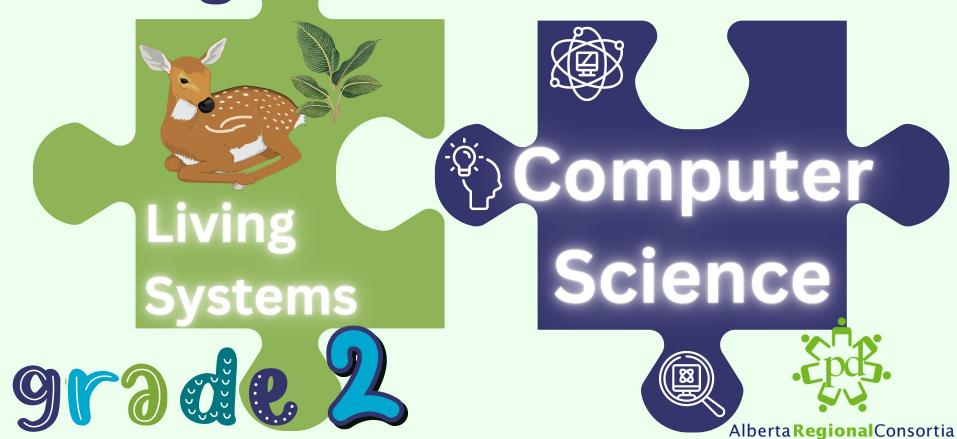
Making Connections



Organizing Idea	Computer Science: Problem solving and scientific inquiry are developed through the knowledgeable application of creativity, design, and computational thinking.				
Guiding Question	How can instructions affect outcomes?				
Learning Outcome	Students follow instructions and relate them to outcomes.				
Knowledge		Understanding	Skills & Procedures		
Creativity is the ability to generate something original, such as • ideas • technology • tools • products		Instructions are designed using creativity and problem solving, which can be enhanced through collaboration.	Identify ways creativity is used to design instructions.		
Creativity can be used to design instructions for • games • sports • investigations					

recipes

computer programs

Collaboration can result in improved ideas, which may enhance creativity and problem solving.

Organizing Idea	Computer Science: Problem solving and scientific inquiry are developed through the knowledgeable application of creativity, design, and computational thinking.				
Guiding Question	How can instructions affect outcomes?				
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Knowledge		Understanding	Skills & Procedures		

Instructions can be created to be precise, reliable,

and efficient to achieve the desired outcome.

Work individually or in groups to create instructions

Predict the outcome of instructions that have three to

Test instructions with three to four steps to verify that

Debug any errors in a set of instructions to achieve a

using precise words, pictures, or diagrams.

achieve a desired outcome.

a desired outcome is achieved.

four steps.

desired outcome.

desired outcome.

Create three-step to four-step instructions that

Refine instructions to more efficiently achieve a

Precise instructions have a variety of components,

Reliability of instructions means they consistently

Efficiency of instructions refers to designing in a way

that yields desired outcomes with the least amount of

The reliability and efficiency of instructions can be affected by how they are communicated, including

includingverbs

simple language

energy, time, or steps.

orderclarity

· a starting and stopping point

lead to the same desired outcome.

· form; e.g., verbal, visual, written

· clear steps

Organizing Idea	Computer Science: Problem solving and scientific inquiry are developed through the knowledgeable application of creativity, design, and computational thinking.			
Guiding Question	How can instructions affect outcomes?			
Learning Outcome	Students follow instructions and relate them to outcomes.			
Knowledge		Understanding	Skills & Procedures	
Many people, individually or in groups, can create		Instructions can be created to be precise, reliable,	Work individually or in groups to create instructions	

using precise words, pictures, or diagrams.

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Create three-step to four-step instructions that

Refine instructions to more efficiently achieve a

Predict the outcome of instructions that have three to

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Debug any errors in a set of instructions to achieve a

and efficient to achieve the desired outcome.

instructions, such as

computer programmers

Many activities at school and in the workplace

require creativity and collaboration to improve ideas.

Debugging is the process of identifying and removing

Debugging can increase the reliability of instructions.

errors in a set of instructions to achieve a desired

teachersparents

students

outcome.

Creativity

Finding different ways to reach the same outcome.

Problem solving to overcome obstacles to achieve a desired outcome.





Design Thinking Process



Learn About Your Audience



Brainstorm and
Come up with
Creative Solutions



Prototype

Test Your Ideas



Construct Point of View Based on User Needs

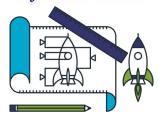
Define

Ideate

Build Representation of Your Ideas

Test





Computational Thinking

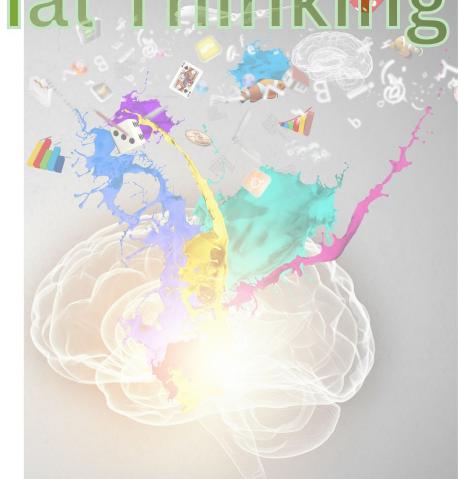
Decomposition



Pattern Recognition

Pattern Abstraction

Algorithm Design



Organizing Idea

Living Systems: Orderstandings of the inving world, Earth, and space are deepened by investigating hatdral systems and their interactions.

Guiding Question

How do plants and animals survive?

Learning Outcome

Students investigate and examine needs of plants and animals.

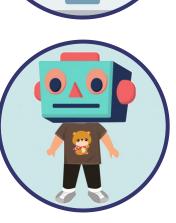
Skills & Procedures

Identify similarities between offspring and their parents.

Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their

Activities and routines we do in the classroom can be connected creating instructions!



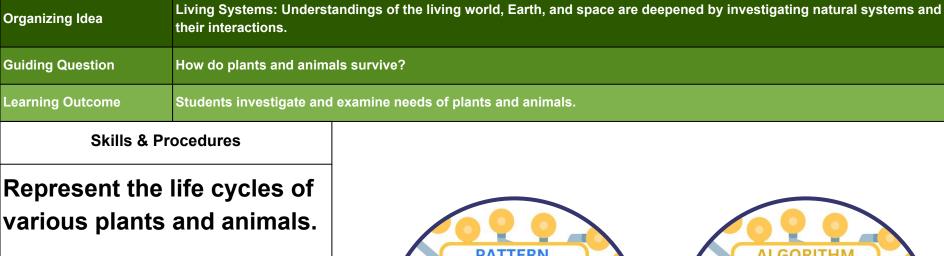




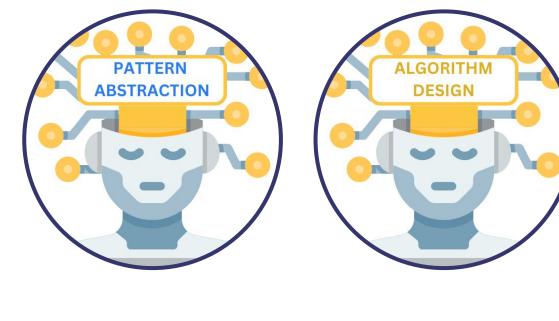
How are they the same?
How are they different?

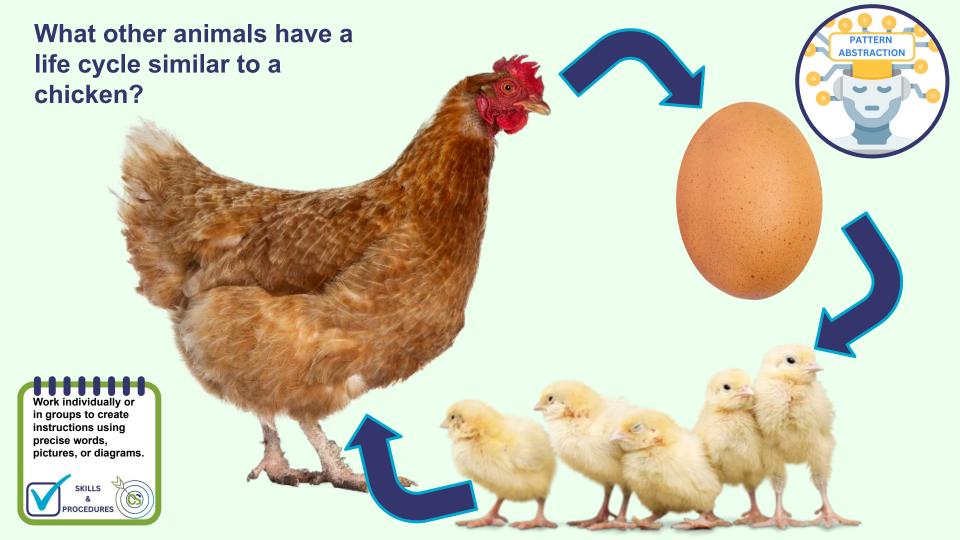






Discuss and compare life cycles of various plants and animals.

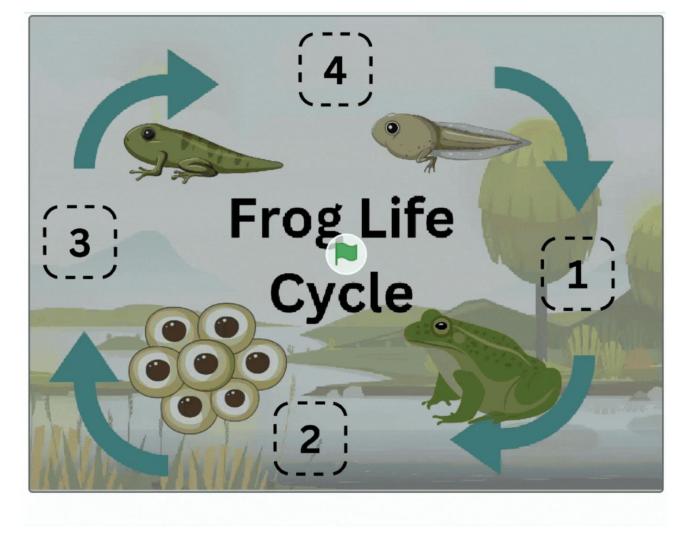




Frog Life Cycle Game

bit.ly/MrsDFrogExample





Scratch Cards

bit.ly/MrsDFrogCards



Scratch Template

bit.ly/MrsDFrog





EXTENSION: This template can be shared with students or done together as a class to learn about Computer Science and Living Systems at the same time!



Create three-step to four-step instructions that achieve a desired outcome.



Predict the outcome of instructions that have three to four steps.



Refine instructions to more efficiently achieve a desired outcome.







Debug any errors in a set of instructions to achieve a desired outcome.



TIP!

Get a class of older students to come and work with your class on Scratch if they have never used it before.