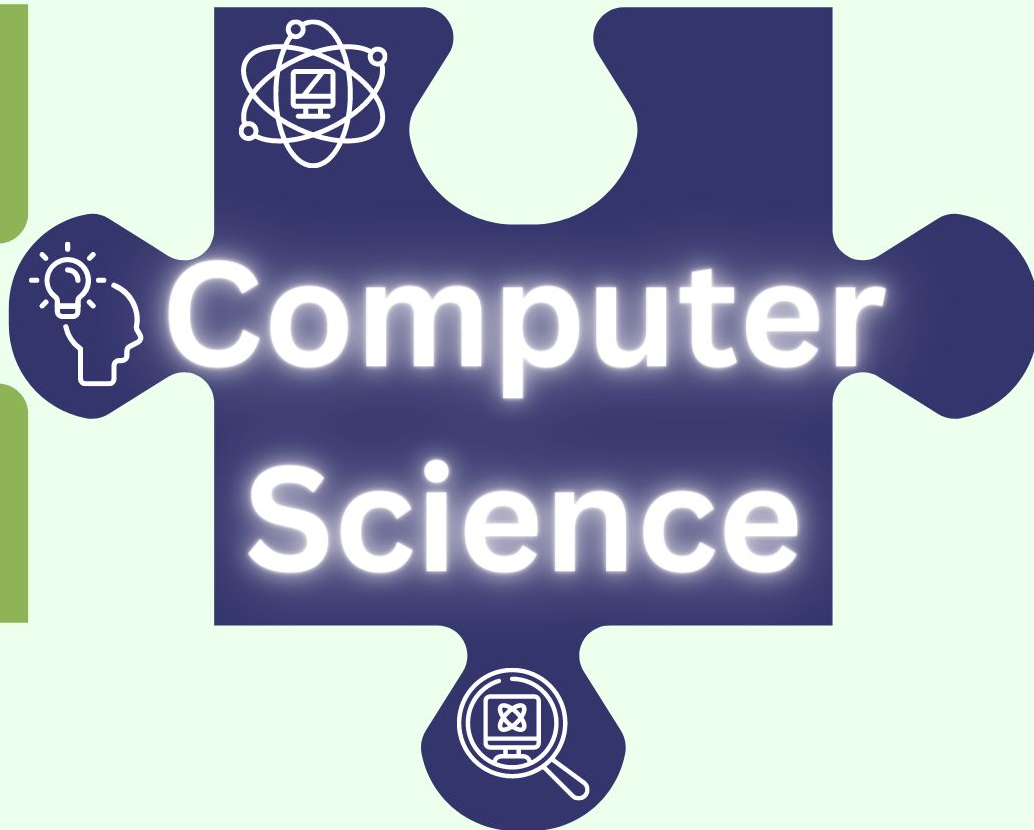


Making Connections



Living
Systems



Computer
Science

grade 1

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 be used?		
Learning Outcome	Children interpret instructions in various environments.		
Knowledge	Understanding	Skills & Procedures	
Instructions are directions that can be followed and given in various forms, including • verbal • audio • visual • written	The form in which instructions are given may not affect the outcome.	Follow instructions with two or three steps given in different forms.	
Many types of instructions need to be in a specific order, such as • directions • recipes • computer programs • safety protocols	Instructions are ordered in a way that will produce a desired outcome.	Determine if instructions with two or three steps given in different orders still produce the desired outcome. Sequence two or three instruction steps to achieve a desired outcome. Exchange ideas for creating three-step instructions that achieve a desired outcome.	
Following instructions is a way to demonstrate respect and safety during investigations.	Instructions help to keep people safe.	Follow instructions during investigations.	



Design Thinking Process



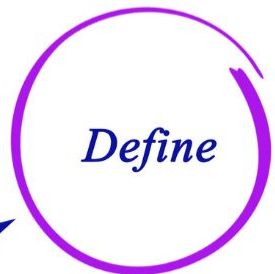
*Learn About
Your Audience*



*Brainstorm and
Come up with
Creative Solutions*

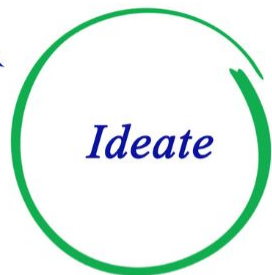


Test Your Ideas

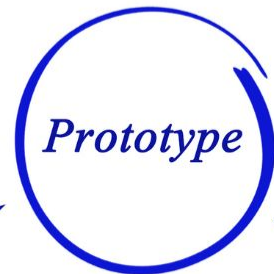


Define

*Construct Point
of View Based
on User Needs*

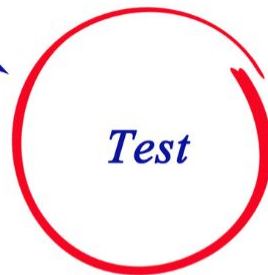


Ideate



Prototype

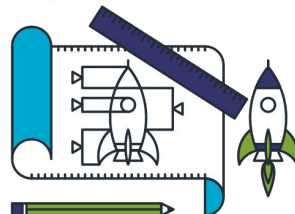
*Build
Representation
of Your Ideas*



Test

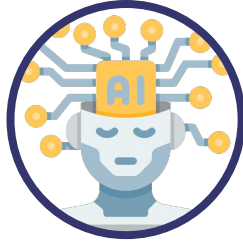


Empathize



Computational Thinking

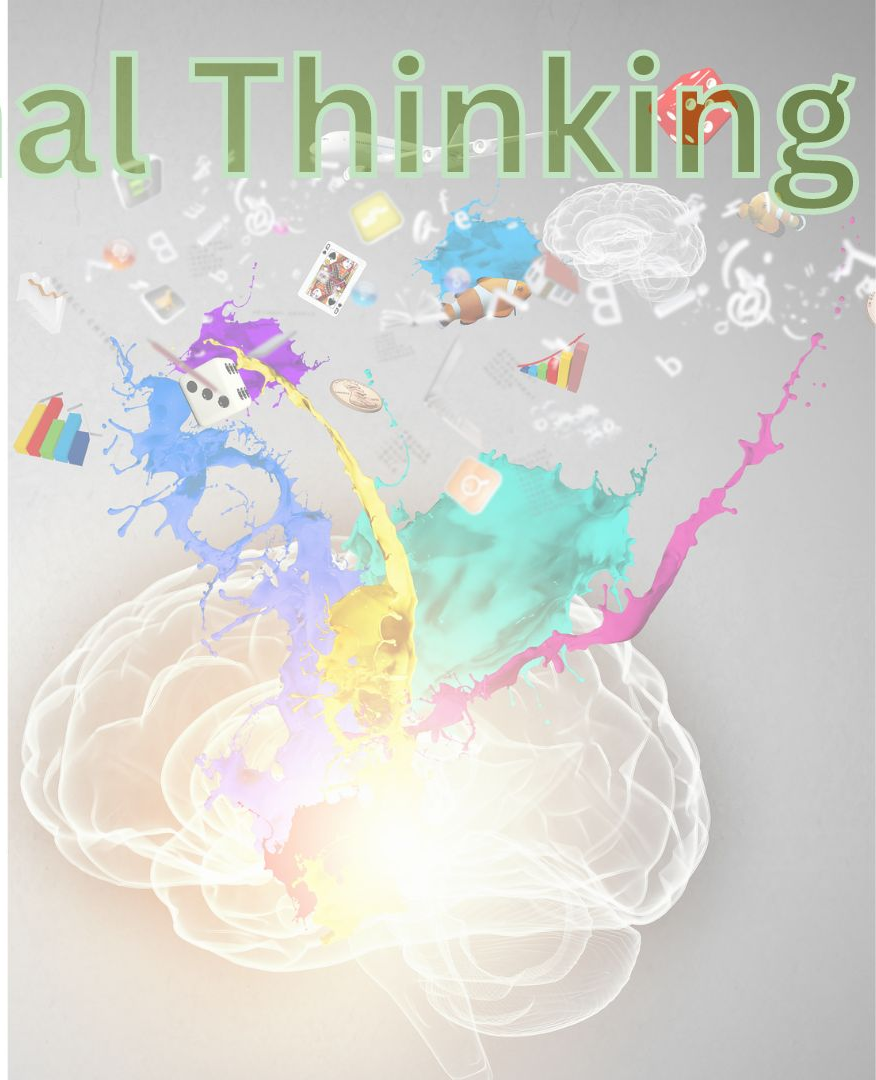
Decomposition



Pattern Recognition

Pattern Abstraction

Algorithm Design



Creativity

Finding different ways to reach the same outcome.

Problem solving to overcome obstacles to achieve a desired outcome.



Organizing Idea	Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural 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
Observe and describe similarities and differences between plants and animals.

Computational Thinking

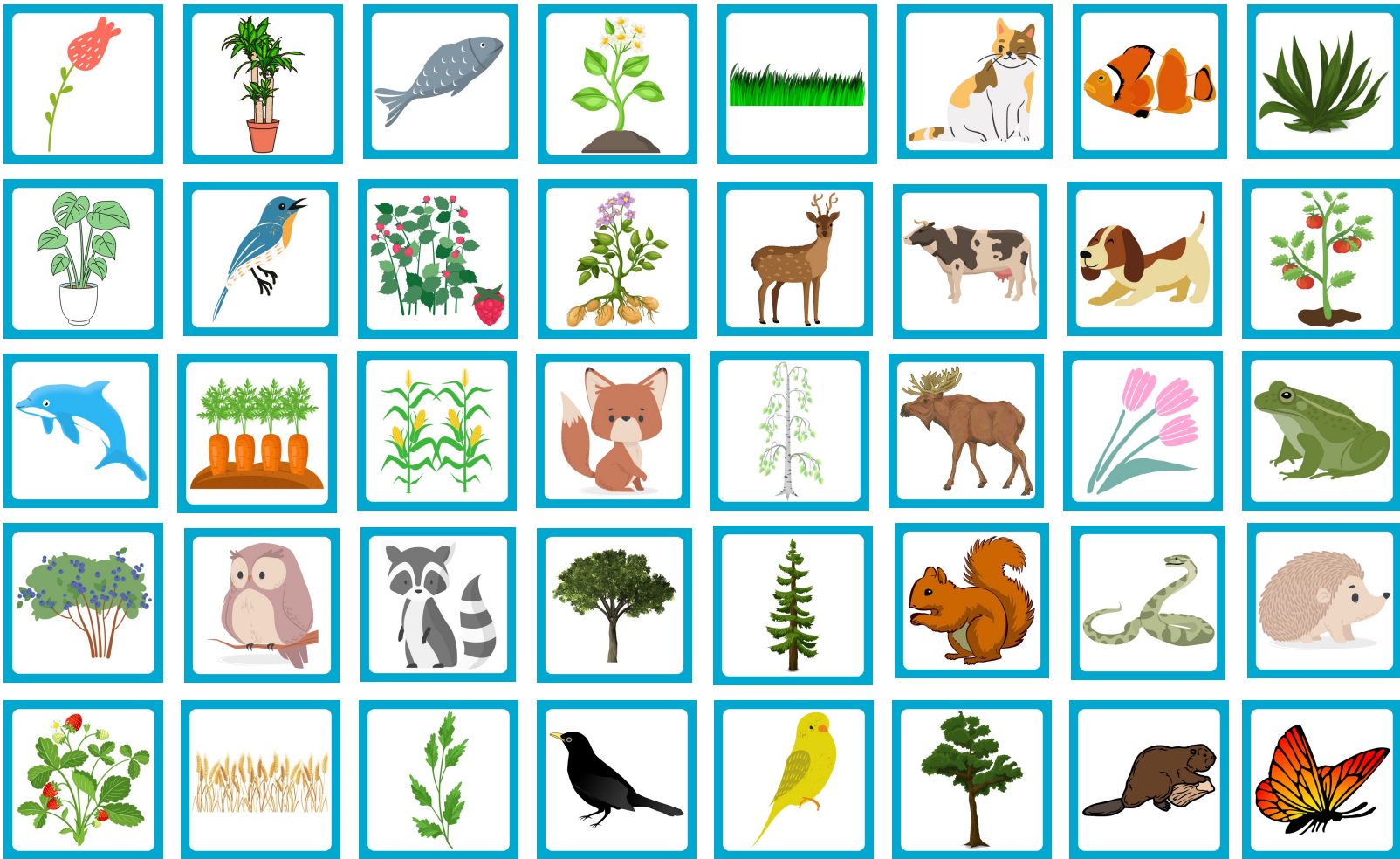
Decomposition

Pattern Recognition

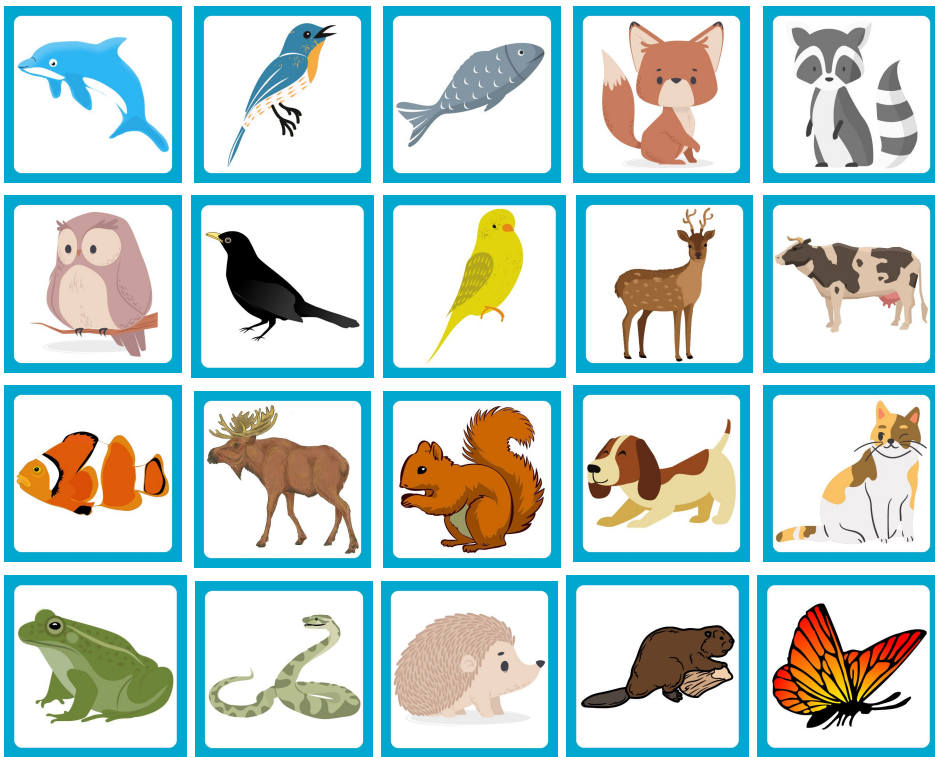
Pattern Abstraction

Algorithm Design

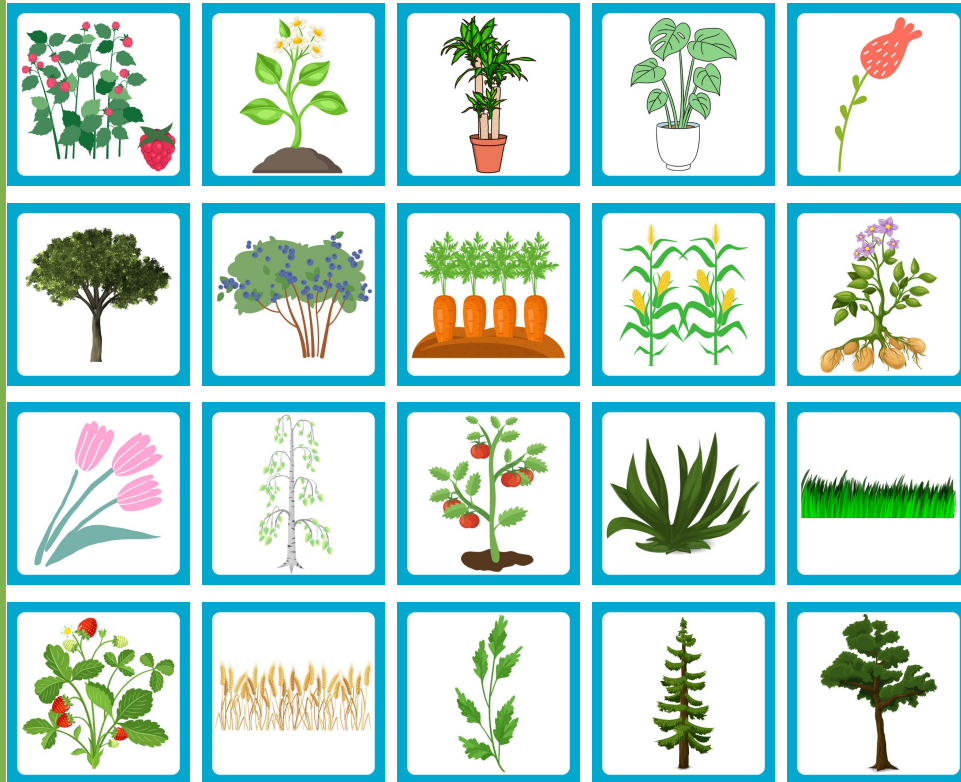




ANIMALS



PLANTS



Organizing Idea	Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions.
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Learning Outcome	Students investigate and examine needs of plants and animals.

Skills & Procedures

Observe and describe similarities and differences between plants and animals.

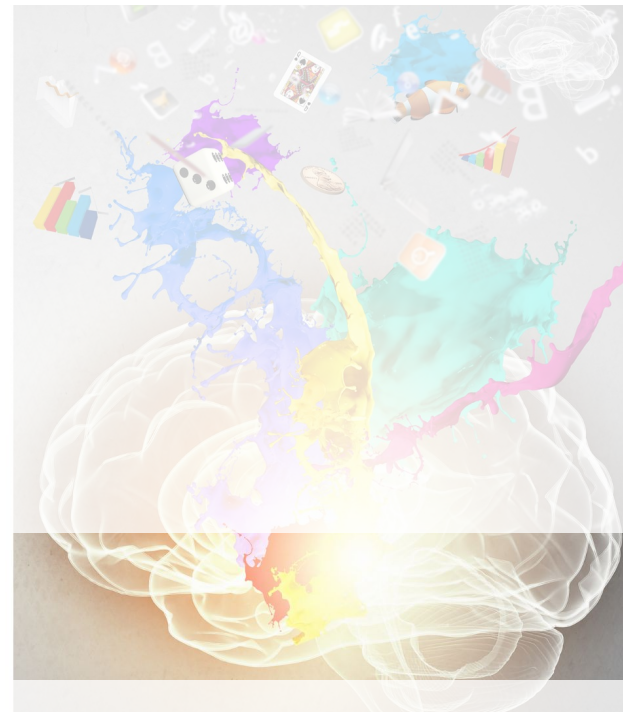
Computational Thinking

Decomposition

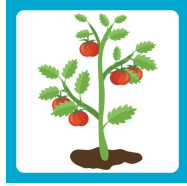
Pattern Recognition

Pattern Abstraction

Algorithm Design

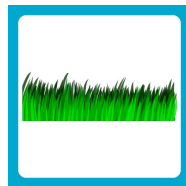
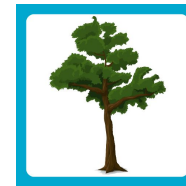
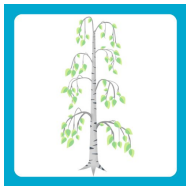


FOOD



If it is a plant AND we eat it.

NOT FOOD



If it is a plant AND we don't eat it.

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

Represent plants and animals in various environments.

Computational Thinking

Decomposition

Pattern Recognition

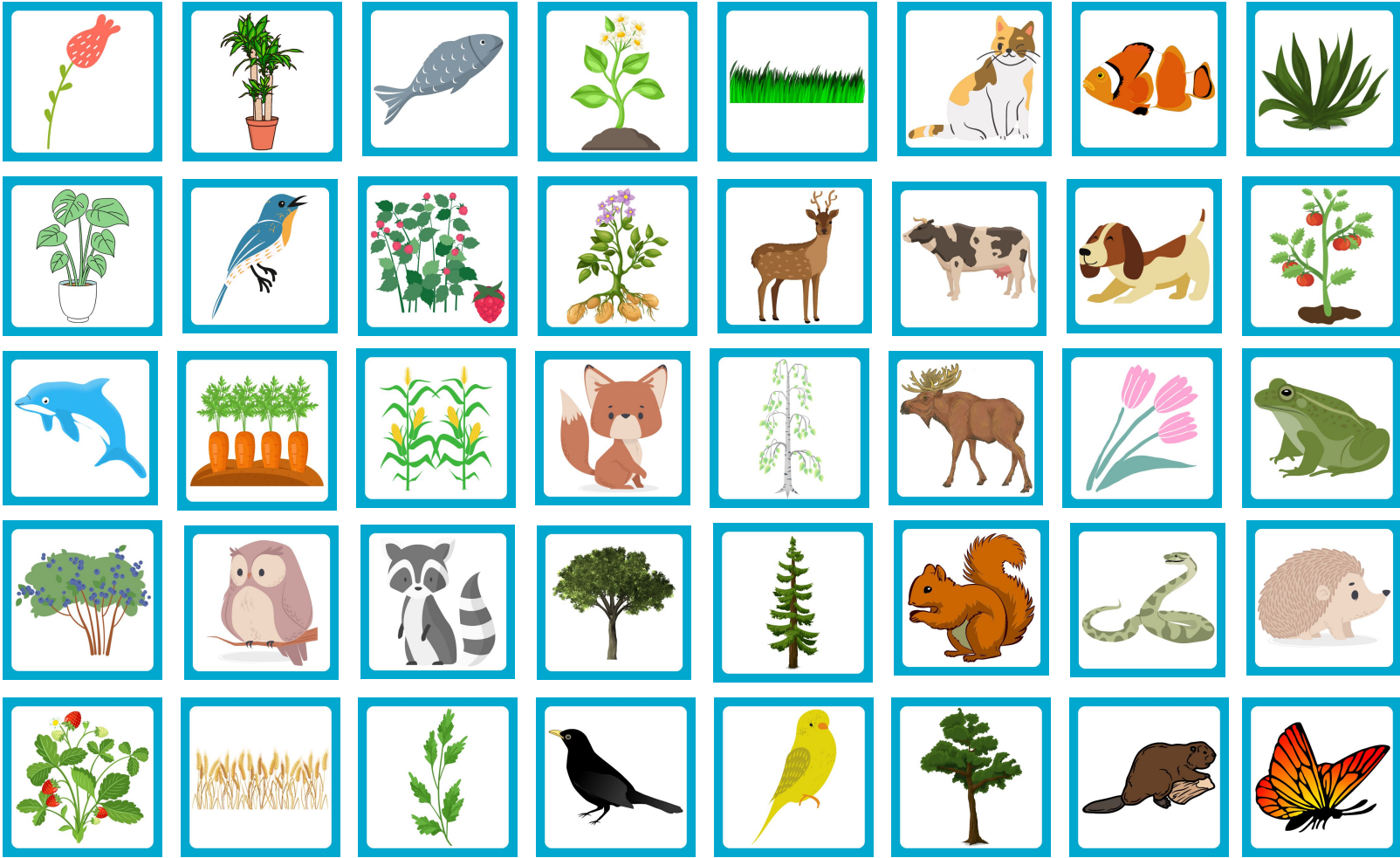
Pattern Abstraction

Algorithm Design



Same Needs

- food
- water
- air
- shelter



Different Environments

- forests
- prairies
- lakes
- rivers
- mountains

Organizing Idea	Living Systems: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions.
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Skills & Procedures
Represent plants and animals in various environments.

Computational Thinking

Decomposition

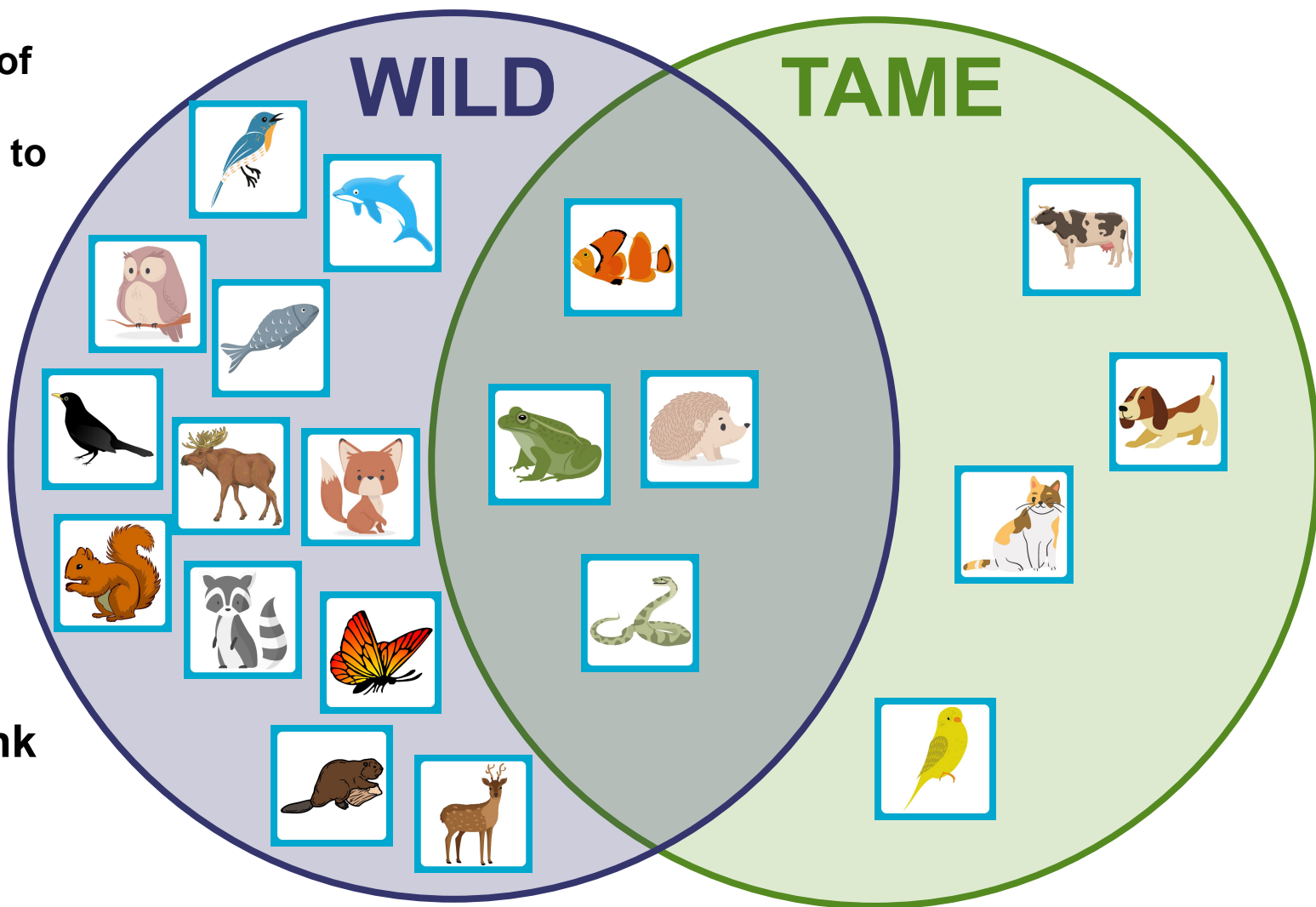
Pattern Recognition

Pattern Abstraction

Algorithm Design

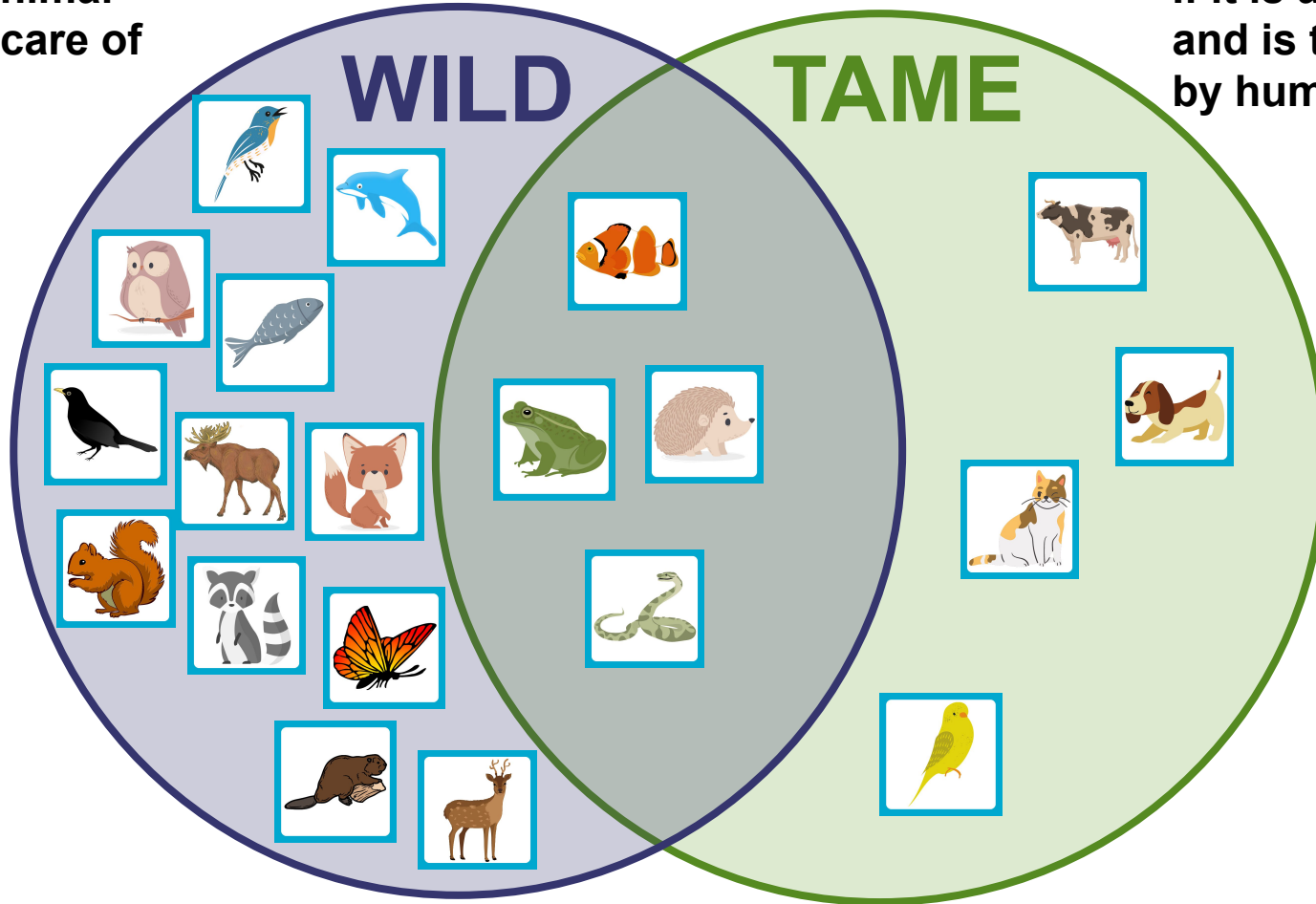


Can you think of
some other
animals to add to
each group?



Can you think
of a rule for
sorting?

If it is an animal
and takes care of
itself



If it is an animal
and is taken care
by humans