

SCIENCE 21 ESSENTIAL QUESTIONS

- How do scientists find out about objects, living things, events and phenomena?
- What does it mean to be living?
- What do living things need to survive? How do the parts of living things help them to survive?
- How does studying cycles help us to understand natural processes?
- How do living things adapt to the environment?
- How can we safeguard our environment?
- How can we organize materials and events to help us make sense of what we observe?
- What is matter and how does it behave?
- What is energy, where do we find it, how does it change from one form to another, and how does it affect our everyday lives?
- What do we know about how Earth features are formed?
- What is our place in the universe?

BIG QUESTION FOR KINDERGARTEN

How do we find out about our world?

KINDERGARTEN, Unit 1

- How do our senses help us to find out about familiar objects?
- How can our senses help us to predict?

KINDERGARTEN, Unit 2

- How can we group objects?
- How do our senses help us every day?
- How do we take care of our bodies?

KINDERGARTEN, Unit 3

- How are living things different from non-living things?
- What do living things use to survive?
- How do the parts of living things help them survive?
- How do living things adapt to the environment?

KINDERGARTEN, Unit 4

- What happens when we mix things?
- How can our senses help us to figure out what happens when we mix things?
- How can we find patterns and rules when mixing things?

BIG QUESTION FOR GRADE 1

Where do we find organization in our world?

GRADE 1, Unit 1

- How do we have to organize our work to behave like a scientist?
- Why are safety rules important when doing science?

GRADE 1, Unit 2

- How does studying the attributes/properties of objects help us to understand them, organize them, and answer questions about them?
- How can we communicate the results of our science experiments to other people?

GRADE 1, Unit 3

- How do we know that objects or materials can exist as solids, liquids, or gasses by observing their properties/attributes?
- How is energy related to the change of state of materials?
- Why is it important for us that objects can be solids, liquids, or gasses?

GRADE 1, Unit 4

- What does it mean to be a living thing?
- What do living things need to live and grow?
- How do living things use their body parts to get the things they need to live and grow?
- How do we take good care of living things in our science lessons?
- How can we find out how living things react to different stimuli and conditions?

BIG QUESTION FOR GRADE 2

How do we measure changes in our world?

GRADE 2, Unit 1

- What tools do we use in our daily lives and how do they make life easier for us?
- Why is it important to know which measurement tool is good for which job?
- How do scientists organize and carry out an investigation?

GRADE 2, Unit 2

- What are the different forms of energy in our daily lives and how do the changes in the forms of energy help us?
- How can we use our knowledge about energy to design an invention related to energy?

GRADE 2, Unit 3

- How do we show respect for the animals in our class and take good care of them?
- What do living things need to grow and thrive?
- How do living things use their body parts to get the things they need to live and grow?
- How do we measure changes in living things over time?
- How are the animals that we study alike and different from humans?

GRADE 2, Unit 4

- How do we observe and measure daily, monthly, and yearly changes in the environment?
- How do animals and plants make adaptations to changing conditions caused by the seasons?
- How do the sun and the moon cause changes in the Earth and how do living things adapt to those changes?

BIG QUESTION FOR GRADE 3

What cycles do we observe in the natural world?

GRADE 3, Unit 1

- What do we need to do to investigate problems like scientists?
- How do we show respect for living plants and take good care of them?
- Why do plants need the parts that they have?
- Why are life cycles of plants and animals important for life on Earth to continue?

GRADE 3, Unit 2

- What would a day in your life be like without electricity?
- How can we be safe with electricity?
- Why do you have to choose just the right components and attach them in a certain way for an electrical circuit to work? What can you invent to use an electric circuit?

GRADE 3, Unit 3

- What are the sources and uses of water?
- How does water interact with other substances?
- What is a water cycle?
- How does water change from one form to another?
- How does water affect our weather?
- Why is it important to preserve our sources and quality of water?

GRADE 3, Unit 4

- How do we take good care of living things?
- What are the characteristics of animals?
- What do animals need to live and grow?
- How do animals use their body parts to get the things they need to live and grow?
- How do animals go through a cycle in their lifetimes?
- How are humans and other animals dependent upon one another?

BIG QUESTIONS FOR GRADE 4

How are individuals and living organisms and groups of living things organized to get food?

How are machines organized to do work?

How is the Earth organized and how does that organization change?

GRADE 4, Unit 1

- How can we identify problems to solve in science?
- How can we investigate a problem we select?
- Why is it important to make and follow a written plan or procedure when doing an investigation?
- How do communicate the results of our investigations to others?

GRADE 4, Unit 2

- What is a food chain and where do we find them? What is a food web and where do we find them?
- How does energy flow within an organism, a food chain, and a food web?
- What nutrients are essential for our growth and well-being and how do we use them?
- What is a food pyramid and why is it important?
- How does the structure of the digestive system help you survive?

GRADE 4, Unit 3

- What are simple machines and how do they make work easier?
- How do you make a simple machine and how do you use it make work easier?
- How have simple machines affected the development of human civilizations?

GRADE 4, Unit 4

- What are the forces that build landforms?
- What are the forces that break down landforms?
- What is the relationship between air, water, and land?
- How does the study of rocks give us clues about the composition of the Earth?

BIG QUESTIONS FOR GRADE 5

How do scientists use tools to observe, describe, and measure the interactions they find in the natural world?

How does matter interact with other matter?

What are cells in living organisms and how do they help an organism survive?

How are the internal systems of organisms structured to help an organism survive?

What forms of energy do we find in our world and how does that energy interact with matter?

GRADE 5, Unit 1

- What is a “fair” test?
- How can we be safe when we investigate?
- What is matter?
- How do elements react with one another?
- How do substances react with one another?

GRADE 5, Unit 2

- What are cells and how do they carry out life functions?
- How are cells organized into working groups?
- How are organisms grouped and classified?
- How do living organisms get the energy they need and how do they use it?

GRADE 5, Unit 3

- How do organs and tissues interact with one another and carry out life functions?
- How do organ systems work and respond to changing demands of an organism?
- How are traits in organisms passed from one generation to another?
- How do we keep our bodies healthy?

GRADE 5, Unit 4

- How does matter move and change in the environment?
- How is energy transferred and transformed as it flows through a food chain?
- How do meteorologists organize and use information about air, water, and land to predict the weather?

BIG QUESTIONS FOR GRADE 6

How do science and technology help us to live more productive lives? What challenges for our survival are presented by the advance of science and technology?

GRADE 6, Unit 1

- How can we use the scientific method to find answers to problems?
- What is a “fair test?”
- How can models help us to predict the nature of objects and systems that we cannot see?

GRADE 6, Unit 2

- What are the forms of energy and where are they found in our daily lives?
- How is energy used, and when it is used how does it interact with matter and change from one form to another?
- How do forces act upon one another and with matter?
- How do magnetism and electricity interact with one another and with matter?

GRADE 6, Unit 3

- How do the components of our Solar System move and interact with one another?
- What is the “reason for the seasons?”
- How do the motions of Earth and our moon affect our lives?
- What are the properties of light and how does it behave?

GRADE 6, Unit 4

- What are the components of an ecosystem and how do they interact with one another?
- How does energy flow within an ecosystem?
- Why is balance within an ecosystem essential for its sustainability?
- How have human activities impacted upon the balance in the ecosystem in which we live?
- What are some of the varying views regarding the impact of humans upon our ecosystem?