Science: Investigating the World

Eight sequential multi-age lessons with instruction, practice and an end-of-course check. Teach one lesson over two or more sessions: read and discuss, complete the selected activity, then review with the parent. Choose the level by demonstrated readiness rather than age. Beginning learners may answer orally or draw; older learners should explain evidence and use sources. Print from the browser or copy into a notebook. Keep student records private.

Scripture study: Read Proverbs 2:1–6 in context as a family and discuss the pursuit of wisdom. Academic claims in this course are evaluated using the relevant evidence and sources; a moral application does not replace investigation. This initial course is not a full-year grade-specific curriculum or a claim that every state standard is covered.

Lesson 1: Questions and evidence

Learn: An observation is information gathered with our senses or instruments. An inference is an explanation based on observations and other knowledge. A scientific question can be investigated with evidence; a fair comparison attempts to change one factor while keeping other relevant conditions similar. A model represents important features of a system but leaves some details out.

Check understanding: A cup has a lower water level today than yesterday. What is observed? Give one possible explanation and one other factor to investigate.

Choose a level: Foundations: Draw the cup and tell the adult one observation. Builders: Write one observation and one explanation, and explain how they differ. Advancing: Design a comparison with the changed factor, measured outcome, two controlled conditions, and one limitation.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 2: Matter and change

Learn: Matter has mass and takes up space. A solid generally keeps its shape, a liquid takes the shape of its container, and a gas spreads to fill available space. Melting and freezing change state. Dissolving sugar in water makes a mixture; it does not prove the sugar vanished.

Check understanding: Classify ice, liquid water, and water vapor. What evidence could show sugar remains after dissolving?

Choose a level: Foundations: Sort safe objects as solid or liquid with an adult. Builders: Draw particles in a solid and liquid and label the model. Advancing: Plan how to compare mass before and after dissolving in a closed container; explain why an open container may lose water.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 3: Energy and motion

Learn: Energy can be transferred among objects or systems. A push or pull is a force. When the net force changes, an object’s motion may change; the effect also depends on its mass. Friction between contacting surfaces can oppose their relative motion and transfer energy as warming.

Check understanding: What is a force? Why should a comparison use the same ramp height and car?

Choose a level: Foundations: Gently push a toy and describe its motion. Builders: Compare the same car on two surfaces and record distances, if safe. Advancing: Repeat trials, calculate a mean and discuss how friction and uncontrolled differences may affect results.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 4: Water on the move

Learn: Water moves through multiple pathways. Evaporation changes liquid water into water vapor; condensation changes water vapor into liquid droplets. Precipitation includes rain, snow, sleet, and hail. Water can run over land, soak into the ground, or be taken up by living things. A water molecule does not follow a single mandatory route.

Check understanding: Define evaporation and condensation. Is every water molecule required to pass through the same sequence?

Choose a level: Foundations: Draw and label rain and a body of water. Builders: Draw a water-cycle model with three labeled processes. Advancing: Describe runoff and infiltration and explain one limitation of a simple diagram.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 5: Weather and climate

Learn: Weather refers to conditions at a place over short periods, such as today’s wind or temperature. Climate describes patterns and statistics of weather over a long time. A forecast is an estimate based on observations and models, with uncertainty. One hot or cold day does not determine the climate of a place.

Check understanding: Which describes climate: today’s rainfall or rainfall patterns over many years? Why is one day insufficient?

Choose a level: Foundations: Describe observed weather safely from indoors. Builders: Create a weather table with date, units, and real measurements only. Advancing: Explain a forecast and compare a short sample with the longer records needed for climate.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 6: Living systems

Learn: Living things have structures that support survival and reproduction. Many plants use sunlight, water, and carbon dioxide to make sugars through photosynthesis. Animals obtain energy by eating other organisms. Organisms interact with nonliving factors such as water, light, and soil. A food web represents multiple feeding relationships.

Check understanding: How do plants and animals obtain energy differently? What does a food-web arrow represent?

Choose a level: Foundations: Draw a plant and label a leaf and root. Builders: Draw a simple food chain with arrows from food to consumer. Advancing: Explain how a change in one population could affect others and identify a limitation of the model.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 7: Body systems and health

Learn: The heart pumps blood through vessels. The lungs exchange oxygen and carbon dioxide with blood. Muscles and bones help move and support the body. Sleep, appropriate activity, varied food, and hygiene support health, but personal needs differ. Seek a qualified professional for individual health concerns.

Check understanding: What do the heart and lungs do? Why should health plans allow for individual differences?

Choose a level: Foundations: Label heart and lungs on an outline. Builders: Explain how blood connects the heart and lungs. Advancing: Describe an interaction of two body systems and distinguish general health advice from individual medical care.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Lesson 8: Earth, resources and design

Learn: People use natural resources such as water, soil, minerals and energy sources. Choices can have benefits and costs for people and ecosystems. Engineers define a problem, set criteria and constraints, test a design, and improve it using evidence. One test alone may not show how a design performs in all conditions.

Check understanding: What is a design criterion? Why should a design be tested more than once?

Choose a level: Foundations: Draw a container that keeps paper dry. Builders: Describe materials, test one safe design with adult supervision, and record what happens. Advancing: Specify criteria, repeat tests, compare results, and recommend one improvement.

Record: Write, draw or dictate your response. Save evidence privately and ask an adult to review it.

Independent Course Check

Answer without the parent guide when ready. Draw or dictate if appropriate, and tell the parent what support was needed.

1. State one observation and one possible inference for a wet sidewalk.

2. Describe evaporation and condensation.

3. Explain one difference between weather and climate.

4. Draw a food chain and show the direction of energy transfer.

5. Give one criterion and one limitation of a design test.

After the check, use the separate parent guide and answer key.

Sources and Further Study

Alabama official course of study | Primary source and background

Alabama materials are benchmarks for planning. Families in other states should check their own requirements. The individual standards have not been fully crosswalked for this course.

Academy home.