

THE HERO ACADEMY

The Hero's Quest for Knowledge Curriculum

The Alchemist's Compendium

Adult Teaching Guide

Science

Veritas. Virtus. Scientia.

Truth. Virtue. Knowledge.

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SCI-K-01 | printable section

Includes SCI-K-01. These introductory sections do not constitute a complete kindergarten course or a finished K-12 curriculum.

The four companion books

The Student Book explains concepts through reading, examples, and diagrams. The Adult Teaching Guide provides modeling and supported practice. The Student Workbook holds activities and checks. The Answer and Assessment Guide supplies keys, criteria, and retry guidance.

The K-12 learning roadmap is the plan for future content, not a lesson book. These four growing books contain only the sections listed below.

Using this edition

A beginning reader needs an adult to read the explanatory passages aloud. Independent word reading is expected only for explicitly taught patterns in Reading. An adult supplies safe materials and supports access; oral responses, pointing, or drawings can demonstrate the same skill.

Lesson and activity IDs stay together across the four books. For example, a lesson ending L01 links to the activity ending W01 in the same unit. Each unit finishes with its A01 section check. Matching edition 0.3 components should be used together.

Contents

SCI-K-01 | Observing and comparing

SCI-K-01-L01 - Observations describe what is noticed

SCI-K-01-L02 - Comparisons use the same feature

SCI-K-01-L03 - A record separates observations from explanations

Learning at an individual pace

The learner revisits the relevant explanation after feedback, then tries a fresh example. Successful demonstration of each target is a suggested local progression rule, not a validated placement score. Personal beliefs and agreement with the author are never graded.

Observing and comparing

Before this section

The learner communicates observations through speech, pointing, drawing, or an accessible alternative. An adult reads the text.

Materials

A clean leaf or paper leaf, two large safe objects with different textures, two straight paper strips of equal width and different lengths prepared by an adult, paper, and a pencil. No tasting, smelling unknown substances, or outdoor collecting is required.

SCI-K-01-L01

Observations describe what is noticed

Distinguish an observable feature from a personal preference.

An observation describes something noticed using senses or an instrument. A leaf may have a pointed edge. A block may feel smooth. A ruler can provide a measurement. An observation is more useful when another person can understand what was examined and how.

The adult places a safe object on a table and describes one feature that can be checked, such as its shape. The learner adds a different observable feature. The learner does not need to name every part correctly; pointing or drawing can show the feature.

A preference tells what a person likes. A person may like a leaf because of its color, but that preference does not establish that everyone likes it. This section records observable features. Learners may have preferences, but those preferences are kept separate from the observation record. Some observations differ because of lighting, tools, or access; the method is recorded instead of assuming every observer has the same experience.

Model an example

Worked example: “The block has four corners on this face” describes a feature that can be checked. “This is the nicest block” expresses a judgment. Both statements can be discussed, but they serve different purposes.

Supported practice

The adult models one checkable statement about a safe object. The learner points to the evidence and makes a second statement. Touch is optional; a visual or adult description may substitute. When the adult supplies the description, the record identifies the adult as its source.

Student and workbook links

The Student Book uses SCI-K-01-L01 and its accompanying visual. Then the learner completes SCI-K-01-W01, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Use a real folded sheet; introduce fold through pointing or safe touch.

Help record the observed fold using a drawing or spoken words.

Read the short comparison aloud: liking something is different from describing its fold.

Comparisons use the same feature

Compare two objects by a named observable property.

A comparison describes a similarity or difference. Two objects can share a shape and differ in size. One comparison should name the feature being compared. “These are different” gives less information than “This strip is longer than that strip.”

An adult lays two straight paper strips flat and parallel beside each other, with one end aligned. The adult points to their other ends. The strip that extends farther is longer. If the ends are not aligned, the comparison can be misleading.

The learner compares two safe objects by shape, texture, or length. Only the selected feature is recorded. A longer object is not automatically heavier, stronger, or better. Those would be additional questions requiring other evidence.

Model an example

Worked example: Two paper strips have the same width. One is longer. Their widths are alike, while their lengths differ. One property does not determine every other property.

Supported practice

An adult makes two paper strips of different lengths. The learner aligns one end, identifies the longer strip, and describes the evidence.

Student and workbook links

The Student Book uses SCI-K-01-L02 and its accompanying visual. Then the learner completes SCI-K-01-W02, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Lay straight paper strips parallel with aligned ends; use actual objects.

Read the illustrative bars as two lengths; their numbers are adult labels.

Slide one strip, then realign it before comparing; position is not length.

SCI-K-01-L03

A record separates observations from explanations

Record an observation and a question without inventing an answer.

A record keeps information so it can be checked later. A drawing, spoken recording, or written note can be a record. The record should say which object was examined and what was noticed.

An inference is a conclusion or explanation drawn from observations and other information. It can be reasonable without being directly observed. A torn edge can be observed; the claim that a particular person tore it requires additional evidence.

A question identifies something not yet known. For example, a learner may ask whether folding paper changes its length when unfolded again. The learner records the question before trying a safe test with an adult. A result is not changed to fit a guess. “Not checked yet” is more accurate than making up an answer.

Model an example

Worked example: Observation: “This sheet has a crease.” Question: “Does it unfold flat?” The crease alone does not establish when or why the sheet was folded.

Supported practice

The adult folds and unfolds a paper sheet. The learner records a visible feature, then asks a question about the paper. An adult distinguishes a question from a claimed answer.

Student and workbook links

The Student Book uses SCI-K-01-L03 and its accompanying visual. Then the learner completes SCI-K-01-W03, items 1-3. The answer guide uses that same activity ID.

Picture-reading support

Fold and open a sheet; introduce crease by pointing or safe touch.

Help the learner record the actual feature without adding guesses.

Read the question aloud and model a safe check, keeping question and result separate.

SCI-K-01-A01

Section check

After the lessons, the learner completes SCI-K-01-A01 in the workbook. The assessment guide supplies criteria. An adult reads the directions and records any access support.

Revisit and retry

Model a single feature and offer two concrete choices. Revisit the same objects, then transfer the skill to a new safe object.

Sources and content notes

Instruction, practice tasks, and illustrative examples were authored for this series. Invented scenes and diagrams are not historical evidence or measured research data. Source references support the specific concepts below, not a claim of complete topic coverage.

SCI-K-01

Editorial investigation sequence: observe an object, describe one change, compare actual results, and keep a record. Adult-supported tasks develop careful observation before explanations or numerical force calculations. This section is introductory.

NASA-SCIENCE | NASA Space Place: What Is Science?

Background on observation, questions, evidence, and revising explanations. Only these broad concepts inform the introductory paper-observation activities; the page is not a curriculum framework and its historical examples are not reproduced.

<https://spaceplace.nasa.gov/science/en/>

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