

Performance Expectations for SEP S1A3: [Plan and Carry Out Investigations](#)

[Grade: Kindergarten](#)

[Grade: 1st, 2nd](#)

[Grade: 3rd, 4th](#)

[Grade: 5th](#)

Grade: Kindergarten

With teacher guidance, conduct structured investigations to answer scientific questions, test predictions and develop explanations: (1) predict possible outcomes, (2) identify materials and follow procedures, (3) use appropriate tools or instruments to make qualitative observations and take nonstandard measurements, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.

Reflection: What evidence is there that the learner...

	Carries out a structured investigation ¹ with teacher guidance.
	Communicates the results of an investigation in an appropriate manner.
	Gathers qualitative observational data during an investigation.
	Gathers non-standard measurement data during an investigation.
	Uses appropriate tools and instruments ² to gather data during an investigation.
	Identifies how different materials will be used in an investigation.
	Describes what they did during each step of an investigation.
	Predicts the outcome of an investigation before they carry it out.
	Uses the outcomes of their investigation to answer scientific/testable questions.
	Uses the outcomes of their investigation to determine if their predictions were accurate.
	Uses the outcomes of their investigations to construct an explanation for why something happens.

	Follows all safety guidelines during an investigation.
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1. The components of a structured investigations include: predicting possible outcomes, identifying materials and following procedures, using appropriate tools and instruments, recording and representing data in an appropriate form.
2. The following tools are appropriate for Kindergarten:
 - a. eye droppers
 - b. magnifiers and hand lenses

Plan and Carry Out Investigations

Grade: 1st, 2nd

With teacher guidance, conduct structured investigations to answer scientific questions, test predictions and develop explanations: (1) predict possible outcomes, (2) identify materials and follow procedures, (3) use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.

Reflection: What evidence is there that the learner...

	Carries out a structured investigation ¹ with teacher guidance.
	Communicates the results of an investigation in an appropriate manner.
	Gathers qualitative observational data during an investigation.
	Gathers quantitative measurement data during an investigation. (Beginning in 2nd grade, students should begin to transition to the metric system for measurements).
	Uses appropriate tools and instruments ² to gather data during an investigation.
	Identifies how different materials will be used in an investigation.
	Describes what they did during each step of an investigation.
	Predicts the outcome of an investigation before they carry it out.
	Uses the outcomes of their investigation to answer scientific/testable questions.
	Uses the outcomes of their investigation to determine if their predictions were accurate.
	Uses the outcomes of their investigations to construct an explanation for why something happens.
	Follows all safety guidelines during an investigation.

1. The components of a structured investigations include: predicting possible outcomes, identifying materials and following procedures, using appropriate tools and instruments, recording and representing data in an appropriate form.
2. The following tools are appropriate for 1st grade:

- a. eye droppers
 - b. magnifiers and hand lenses
 - c. rulers
3. The following tools are appropriate for 2nd grade
- a. eyedroppers
 - b. magnifiers and hand lenses
 - c. rulers
 - d. thermometers
 - e. rain gauges
 - f. balance
 - g. measuring cup

Plan and Carry Out Investigations

Grade: 3rd, 4th

Plan and conduct scientific investigations to answer questions, test predictions and develop explanations: (1) formulate scientific questions and predict possible outcomes, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.

Reflection: What evidence is there that the learner...

	Formulates questions that can be tested through scientific investigations.
	Plans and carries out a scientific investigation ¹ .
	Communicates the results of an investigation in an appropriate manner.
	Gathers qualitative observational data during an investigation.
	Gathers quantitative measurement data during an investigation.
	Uses appropriate tools and instruments ² to gather data during an investigation.
	Determines what instruments and materials will be used in an investigation.
	Plans a step-by-step procedure for an investigation.
	Determines if a planned investigation is a fair test in which only one independent variable is being tested.
	Predicts the outcome of an investigation before they carry it out.
	Identifies the independent, dependent, and controlled variables in the investigation.
	Uses the outcomes of their investigation to answer scientific/testable questions.
	Uses the outcomes of their investigation to determine if their predictions were accurate.
	Uses the outcomes of their investigations to construct an explanation for why something happens.

	Follows all safety guidelines during an investigation.
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1. The components of a scientific investigations include: formulating testable a question, predicting possible outcomes, identifying materials, developing procedures, identifying variables, selecting and using appropriate tools and instruments, recording and representing data in an appropriate form.
2. The following tools are appropriate for 3rd grade:
 - a. eye droppers
 - b. magnifiers and hand lenses
 - c. rulers
 - d. eyedroppers
 - e. magnifiers and hand lenses
 - f. rulers
 - g. thermometers
 - h. rain gauges
 - i. balance
 - j. measuring cup
 - k. beaker
 - l. meter tape or meter stick
 - m. forceps or tweezers
 - n. graduated cylinders
 - o. graduated syringe
3. The following tools are appropriate for 4th grade:
 - a. eye droppers
 - b. magnifiers and hand lenses
 - c. rulers
 - d. eyedroppers
 - e. magnifiers and hand lenses
 - f. rulers
 - g. thermometers
 - h. rain gauges
 - i. balance
 - j. measuring cup
 - k. beaker
 - l. meter tape or meter stick
 - m. forceps or tweezers
 - n. graduated cylinders
 - o. graduated syringe
 - p. tuning fork
 - q. anemometer
 - r. compass
 - s. mirror
 - t. prism

Plan and Carry Out Investigations

Grade: 5th

Plan and conduct controlled scientific investigations to answer questions, test hypotheses and predictions, and develop explanations: (1) formulate scientific questions and testable hypotheses, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.

Reflection: What evidence is there that the learner...

	Formulates questions that can be tested through scientific investigations.
	Formulates a hypothesis as a proposed explanation for something that can then be tested through a scientific investigation.
	Plans and carries out a scientific investigation ¹ .
	Communicates the results of an investigation in an appropriate manner.
	Gathers qualitative observational data during an investigation.
	Gathers quantitative measurement data during an investigation.
	Uses appropriate tools and instruments ² to gather data during an investigation.
	Determines what instruments and materials will be used in an investigation.
	Plans a step-by-step procedure for an investigation.
	Determines if a planned investigation is a fair test in which only one independent variable is being tested.
	Predicts the outcome of an investigation before they carry it out.
	Identifies the independent, dependent, and controlled variables in the investigation.
	Uses the outcomes of their investigation to answer scientific/testable questions.
	Uses the outcomes of their investigation to determine if their predictions were accurate.

	Uses the outcomes of their investigations to construct an explanation for why something happens.
	Follows all safety guidelines during an investigation.

1. The components of a scientific investigations include: formulating testable a question, formulating a testable hypothesis, predicting possible outcomes, identifying materials, developing procedures, identifying variables, selecting and using appropriate tools and instruments, recording and representing data in an appropriate form.
2. The following tools are appropriate for 5th grade:
 - a. eye droppers
 - b. magnifiers and hand lenses (10x magnification)
 - c. rulers
 - d. eyedroppers
 - e. magnifiers and hand lenses
 - f. rulers
 - g. thermometers
 - h. rain gauges
 - i. balance
 - j. measuring cup
 - k. beaker
 - l. meter tape or meter stick
 - m. forceps or tweezers
 - n. graduated cylinders
 - o. graduated syringe
 - p. tuning fork
 - q. anemometer
 - r. compass
 - s. mirror
 - t. prism
 - u. timing device (stopwatch)