

**Personal Tortoise/Turtle Investigation
(Level 4 Inquiry – Open)**

Grade Level

Grade 4

Science Concept

Ask scientific questions and find ways to test a hypothesis.

Relationship to California Science Content Standards

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
- f. Follow a set of written instructions for a scientific investigation.

Objective

Students will write a 1- to 2-page reflection paper in which they posit a scientific question, create a hypothesis, mention how they would test the hypothesis and report an answer to their initial question.

Conceptual Background

Given the proper structure and some guidance, 4th grade students can put on their “scientist caps” and learn to: develop a scientific question, come up with a way to test it, locate an answer to the question and communicate their findings.

Materials

SERC tortoise or turtle

“Wonder Chart” and “Task Sheet” worksheets for each student

Computer with Internet access

Books from suggested readings list

Engage: Bring the SERC “wildlife ambassador” front-and-center into students’ view. Have them take turns silently walking up to and observing the animal for a few minutes each.

Explore: Say, “I have a lot of questions when I look at this (name of tortoise or turtle.)” Make an honest statement about what you wonder. (For example, “I wonder what this animal eats. Is it an herbivore, carnivore or omnivore?” or “I wonder whether this animal can hear anything.”) Explain that you could come up with a way to test these questions and find an answer. Ask students to raise their hands and tell you how they might test your question.

Pass out the “Wonder Chart” and “Task Sheet” worksheets. Tell students to put on their “scientist caps” and write down at least 5 “wonder” questions in the “Wonder Chart.” Ask them to fill out steps 1-3 on their “Task Sheet” worksheets.

Explain: Tell students that because they are scientists today, you aren’t going to give them an answer to their questions. Explain that they are going to use class time and some spare time outside of school to do steps 4 and 5. (The number of days you allot to this portion of the lesson depends on your own curriculum.) As a class, go over the worksheet that explains the 1- to 2-page write-up.

Extend: Tell students that they will come to class and briefly teach their peers what they learned. Provide each student with at least 3 minutes to share his or her: “wonder” statement, hypothesis, possible test to find the solution, and the answer to the initial question.

Evaluate:

(a) Summative – (See scoring rubric on the following page.)

(b) Formative – Observe students’ level of engagement in the activity. Students should fully fill in the blanks of the “Wonder Chart” and complete steps 1-3 on the “Task Sheet” during class. Check in with students’ progress every day by leading an in-class discussion about how they are conducting research outside of class.

Suggested Readings:

Blomquist, C. (2004). *Box turtles*. New York: PowerKids Press.

Shaskan, T. S. (2010). *What's the difference between a turtle and a tortoise?*.

Minneapolis, Minnesota: Picture Window Books.

Scoring Rubric	Needs Lots of Work (0-2)	Needs Some Work (3-4)	Quality Work (5)	Points (Out of 15)
Participation	Student didn't complete assigned tasks on time/at all. Student didn't share anything about his investigation or findings.	Student needed some reminders to complete assigned tasks on time and shared a few words about his investigation and findings.	Student completed assigned tasks on time. Student thoroughly summarized his investigation and findings with the class.	
Thoroughness	Written report addressed few to no points from the prompt OR was not completed.	Written report addressed most points from the prompt but left out some information.	Written report thoroughly addressed all 7 major points from the prompt.	
Writing	Report was sloppily written/difficult to understand. Report had major spelling, grammatical and punctuation errors.	Report was neatly written with some spelling, grammatical and punctuation errors.	Report was neatly written with few or no spelling, grammatical and punctuation errors.	

Differentiation Plans:

Behavioral for Student A – Student A fidgets and is easily distracted. Provide Student A with a fidget object such as a small toy, stress ball or other object with tactile appeal to enhance focus during direct instruction.

Cognitive for Student B – Adapt this assignment to a lower inquiry level for a student with a cognitive delay. Present Student B with a scientific question, give her a list of possible procedure choices for testing it and then give her tips on ways to find the answer.

Cognitive for Student C – Ask Gifted Student C to complete the word search worksheet (Worksheet # _____) if he completes the in-class assignment early. Encourage him to create a science fair board using his scientific question and investigation.

Affective for Student D – Spell out the objectives for the day and create a visible list of simple steps in the scientific process to help an easily overwhelmed student mentally organize the tasks that are required of her.

Language Demands for Student E – Add lesson-relevant vocabulary to a class word wall, including an illustration (if applicable) and a brief definition of each major word. Include words such as **observation, scientific question, and hypothesis**.

Language Demands for Student F – Scaffold learning by asking Student F focused questions for his “Wonder Chart” and for the follow-up task worksheet.

For example,

“Do you wonder anything about what the turtle eats? How much it eats? What type of food it eats? Do you wonder how long the turtle sleeps? Do you wonder if the turtle sleeps at night or in the day?”

“What might you do to see what types of food a turtle eats?”

Language Demands for Student G – Ask student G to present her findings on a one-on-one student/teacher basis rather than asking her to report it to the class. This reduces the student’s level of stress that could arise when needing to produce language in front of many students.

Directions or Special Instructions; Safety Concerns, etc.

- Students are permitted to closely observe the Ornate box turtle and may be permitted to handle the animal with guidance from a teacher who is properly trained by SERC.
- Wash hands thoroughly after handling the turtle.