

5E Lesson Plan – WHAT A SCIENTIST CAN DO (A 1-3 Day Activity)

Teacher:

Date:

Subject / grade level: WHAT A SCIENTIST CAN DO / grades 3 – 5 (but can be made simpler or more complex)

Materials:

- Students will need computers to access to a STEAMatWork4Kids website.
- They will need paper (construction paper or cardstock is good), pencil or markers, scissors and glue stick or tape to make a pop-up book. Each student can make one or more pages for the pop-up book.
- Copy of [Career Quest Challenge](#) for each student (or you can let them explore the website on their own)
- Optional sticky notes for the “Draw a Scientist” step, one sticky note per student

LANGUAGE ARTS STANDARDS

Find CCSS.ELA-Literacy standards for your grade level in these sections.

Range of Reading and Level of Text Complexity:

By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end [of grade level . . .] independently and proficiently.

Text Types and Purposes:

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

Production and Distribution of Writing:

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Speaking and Listening: Comprehension and Collaboration:

Engage effectively in a range of collaborative discussions with diverse partners on *grade level topics*.

Speaking and Listening: Presentation of Knowledge and Ideas:

Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes

SCIENCE STANDARDS

NGSS

3-5-ETS1- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Lesson objective(s): Students explore different ways scientists contribute to society and writes a definition of “scientist,” which includes diverse people and kids as well as including interesting and fun career possibilities.

Differentiation strategies to meet diverse learner needs:

As needed.

5E Lesson Plan – WHAT A SCIENTIST CAN DO (A 1-3 Day Activity)

- Each scientist page includes videos for use by students who are not fluent readers.
- Teacher can read scientist profiles to students.

ENGAGEMENT (Day 1)

Teacher asks students to draw a scientist. If these are drawn on sticky notes, have students bring them to the front of the room. If not, ask students what their scientist is doing or holding and write the words on the board. Ask students to find common themes among the drawings. How many are chemists? Are any working outdoors? What technology are they using? Are any of different race or ethnicity? Are they working with others? Are any kid scientists?

EXPLORATION (Day 1) Note: You could stop here.

Ask students to explore www.STEAMatWork4Kids.org by giving them a copy of the Career Quest Challenge or setting up your own expectations for what students should look for.

Tell them to think about what all the people on this website have in common. How would they answer the question, “What can a scientist do?” Let them know that this research will help them design and build a pop-up book entitled, “What a Scientist Can Do.”

EXPLANATION (Day 2)

Group discussion:

What did the people they read about do for a living? Brainstorm what skills these scientists have to use. Students might come up with ideas like, observation (systematic, not just random), design and/or uses new tools, tests hypothesis, looks for patterns, etc.

ELABORATION (Day 2 and 3 if you need an extra day)

Put students into groups and tell them to design and build a picture book entitled *What a Scientist Can Do*. You might want to read David Egger’s book *What Can a Citizen Do?* Show them how he mentions specific actions, but then at the end he broadens the idea to include any action that helps somebody else. In the book they make about scientists, they will need to have a page that also broadens the actions.

Each group will make one book. Each student in the group will be responsible for a 2-page spread. Then the pages will be glued back-to-back to make a book. (See first video below). Don’t forget the cover.

Engineering a Pop-Up Book:

Go over the engineering process steps: Ask, Research, Imagine, Plan, Create, Test (practice with cheap paper), Improve.

How to make a pop-up book videos:

- Easy pop-up picture book – <https://www.youtube.com/watch?v=wKoki1NGf5o> (You can watch this and do a 2-minute demo or show this video to the kids.
- Another easy technique - https://www.youtube.com/watch?v=hJ0_a3jYRII
- Blow your mind techniques - https://www.youtube.com/watch?v=RZR_b753ZJ0 (has some cool techniques you could simplify and use on a much simpler book)

Before you hand out the good paper for bookmaking, make sure each group has answered these questions:

5E Lesson Plan – WHAT A SCIENTIST CAN DO (A 1-3 Day Activity)

What different aspect of being a scientist will each group member illustrate?
What kind of pop-up technique will each group member use? Have you made a dummy of the pop up?
Does your book include all kinds of scientists? How?

EVALUATION (Day 3)

Ask each group to read their book to the class and show each page.

Content questions: How did your group define, “What a Scientist Can do” How did you use illustrations to show all the places and things that scientists study?

Engineering questions: How did you solve the pop-up problem? What problems did you run into? How did you solve those problems? What were some unique designs? What have you learned that you could use to improve your next pop-up book?