



# STEP Planning Template

STEP

<b>Facilitators:</b> Joseph, Jackie, and Justin	<b>2022-2023 Academic Year</b> Q1, Week [00]
<b>Duration:</b> 60 minutes	<b># of Scholars/Grade Level:</b> [#/Grade]

## Materials and Preparation:

- ☐ Pencil and Paper
- ☐ [https://github.com/zionSchulerSTEM/STEP\\_session\\_1](https://github.com/zionSchulerSTEM/STEP_session_1)
- ☐ Snacks and a good attitude

## Objectives:

*SWBAT: Scholars will be able to...*

- Determine what a good explanation is
- Identify atleast 2 effective learning strategies
- Identify the four steps to Polya's problem solving framework

## Essential Questions:

- How do we know what we know?
- What types of learning strategies are most effective for you?
- How do you approach solving problems? Do you enjoy systematic ways of doing things?

## Facilitation Steps:

[10] minutes

### Introduction/Opener:

Community building activity where we establish norms around working together as a group, with a particular emphasis on norms revolving around classroom expectations / group activities.

Do we prefer being able to talk freely, or would we like there to be some level of order in determining who gets to speak and when?

Do we prefer having silence in a room as we work, or would we like to tolerate some level of noise in order to enable more team based activities?

What things should we be mindful of when asking questions?

	<p>What things should we be mindful of when responding to questions?</p> <p><a href="https://docs.google.com/forms/d/1NtzyKsW1ab1ITDiZVfI4OgEiYef3oyLZif1-t0cwZFY/edit">https://docs.google.com/forms/d/1NtzyKsW1ab1ITDiZVfI4OgEiYef3oyLZif1-t0cwZFY/edit</a></p>
[25] minutes	<p><b>Presentation:</b></p> <p><a href="https://www.youtube.com/watch?v=3eEffbjzNwE">https://www.youtube.com/watch?v=3eEffbjzNwE</a></p> <p><a href="https://nav.al/conjectural">https://nav.al/conjectural</a></p> <p><a href="https://nav.al/justified">https://nav.al/justified</a></p> <p>The presentation will be focused on the areas of epistemology, learning pedagogy, and problem solving. The learning materials are linked in my github.</p>
[15] minutes	<p><b>Activity:</b></p> <p>Students will be asked to respond to a variety of questions or create their own question to respond to. Here are some example questions, but students will be encouraged to frame a good question and provide a good explanation with regards to a topic that interests them. Here are some examples:</p> <ul style="list-style-type: none"> <li>• Why is the earth NOT flat?</li> <li>• Why does the earth have seasons?</li> <li>• Why is “space is fake” a bad explanation ?</li> <li>• Why are religious explanations of the physical world (like motion, weather, etc etc) less preferable to scientific explanations of the world?</li> <li>• Does light behave like a wave, a particle, both, or neither? Why ?</li> <li>• How do we know that sunlight contains a mixture of different colors?</li> <li>• What makes Newton’s and Einstein’s theory of motion so powerful and such good explanations?</li> <li>• Why is Einstein’s theory of motion better than Newton’s theory of motion?</li> <li>• What makes Newton’s theory of motion better than Archimedes' theory of motion?</li> <li>• What makes Deutsche’s four base theories (theory of knowledge, theory of evolution, theory of quantum theory, theory of computation) good explanations of the world around us? In what ways do they have shortcomings? What are some alternative “theories of everything” or ways of making sense of the world ?</li> </ul>
[10] minutes	<p><b>Closing/Exit Ticket:</b></p> <p>Fill out the worksheet that contains 5 basic questions. Students will be advised to keep responses relatively short since we are focusing on the big picture, not being masters of this material.</p>

**Post-Session:**

**Homework/Preparation for following session**