

Narrowing Research or Engineering Topic Worksheet

Write your big idea: something you're curious about or a problem you want to solve.

Example: Climate change, Robotics, Mental health, Renewable energy, Plastic Waste

1. My broad topic:

2. What makes this interesting or important to you? Is there an unmet need in the community? What do you wish existed?

3. Narrowing the Focus

Step	Question	Notes
Subtopic	What <i>specific parts</i> or <i>angles</i> could fit under this topic? This can be what makes it interesting/important to you	
Focus	Which of those parts interests you most?	
Context	Is there a <i>specific place, group, or example</i> you want to focus on?	
Variable	What <i>exactly</i> could you measure, test, or design? <i>Ex. No MRI machine, but can send out a survey</i>	

Methodology	Is there a method that particularly interests you? <i>Ex. Spectroscopy, deep learning</i>	
For engineering: Design Goal	What does the product need to be able to do? First, define the successful product. Then, how do you quantify success?	
For engineering: User Need	What need in people's lives does this product fulfill? Be specific	

4. Some templates for a narrowed scope:

Scientific Question:

How does _____ affect _____ in _____ population?

Engineering Question:

How can we design/build _____ that does _____ under _____ conditions?

Tips to verify your scope is narrow enough:

- A topic is too narrow if you can state the answer in just a few words
- Conversely, a topic is too broad if the topic itself can be described in a few words
- Can the project be achieved with the materials available to you?
- Is the question/project hypothetically doable in 5 months?