

Teacher Interview Protocol: This takes place before the activity is implemented in the classroom, to help develop the activity for teachers' specific needs.

Round table discussion, with these main questions:

- What are your learning goals for your students?
- How would you use this specific booklet activity in your class (referencing the version currently being used)?
- How may this activity compliment your own curriculum?
- What would you add to this activity?
 - What scaffolding/support would students in your class need to engage in this activity.
- Would you feel confident distributing this activity in your class?
 - What would make you feel more confident? What support or resources may you need?
- What do you think students' responses will be?
- What do you think they might learn from this?
- What would you need to be able to make this activity at home (materials and instructions)?

In addition to the round table discussion with teachers, we will provide booklets with pre-made examples:

- A circuit with minimal variability: One LED, two separate resistors with different resistivity. A switch will change between the two different resistors. The students will write an extended analogy describing the system.
- A circuit with maximal variability. This circuit will include options for LEDs, resistors, capacitors, and buttons. Students will be tasked with assigning each circuit element with a part of a sentence (verb, noun, adjective, etc.) and will use the circuit to help understand sentence structure.
- Here is a story / narrative [insert one here.. e.g. people going in to watch a soccer match and having to buy tickets and then getting to watch the game .. different resistors provide different pathways into the game]... can you build a circuit / components that describe this?

Additionally, we will bring materials for teachers to attempt to make their own booklets and designs.

Possible learning outcomes for students:

- interest in circuits
- awareness of / comfort (anti-anxiety) with circuits
- intuition about how circuits work
- practice with / intuition about analogies
- practice with sentence structure or other things teachers may come up with
- broadening forms of expression and interest in personal expression