

# The Chair Challenge

Grade 5-12

**What:** A quick challenge to take students (Gr. 8 - 12) through a cycle of inquiry

**Why:** To get students excited about an inquiry question and practice a cycle of inquiry

**When:** As part of an introduction to the inquiry process

**Prerequisite Skills:** The ability to use pipe cleaners, foil, paper, cardboard and elastic bands

**Who Needs to Be There?**

- At least 2 students and a teacher - up to a full class
- Divide them into groups of 2-3

**Materials Needed:**

- any construction materials at hand - pipe cleaners, paper, cardboard, rubber bands, foil, etc.
- at least one pair of scissors per group
- pencils & paper for planning

**Time:** 10-15 minutes

## Phase I - The Question

**Provocation & Curiosity**

- Explain the three phases of the inquiry process and explain that today, you and they will be asking a real question that no one knows the answer to, chasing down their own answers in small groups and sharing what they've found.

- Collect a variety of chairs: office chairs, stools, library chairs, etc. Ask the following questions and brainstorm a few answers:
  1. What parts of these objects make them chairs?
  2. What parts are absolutely necessary for something to be a chair?
  3. Is anything you can sit on a chair?
- Explain that humans can use these objects as chairs because our knees bend the way they do (have a couple of students demonstrate sitting to great applause).

### **Introduce the Inquiry Question**

- Write the following inquiry question on a board: “ *What Would a Chair Look Like if Our Knees Bent Backwards?* ”
- Give students a few minutes for initial discussion. At this point, they should be able to see, but not use the building materials. Then give them a short time for questions.
- During the question period, there are usually two types of questions, procedural (“Can we have more tape if we need it?”) and conceptual (“Do our hips bend back, too?”).
- The teacher’s goal is to facilitate, rather than answer, the conceptual questions. The class should quickly agree on answers wherever possible. If students are standing up and modeling new postures, that’s great! Procedural questions can be answered however you like, based on your space and resources. If they want to make subgroups at the tables, that works out well.

## **Phase II - Chasing the Question**

### **Research**

- In this activity, research is limited to conversation and experimentation, so no devices, please! Groups have a few minutes to design and plan on paper, then they may get their share of the materials and start to build.

### **Skills Based Mini-Lessons**

- Teachers circulate and coach. There aren’t many building skills involved in this activity, but group dynamics can be interesting to note for later. Different groups will have different design strategies, so visiting each table and explicitly asking about their process while they’re engaged is a good way to help them remember for later discussion.
- Point out where groups are improving their original design based on experimentation. Cycles of improvement are an important part of

inquiry! (If they need a dummy to test out the chair, “pipe cleaner people” work well....)

### **Phase III - Beyond the Question**

- Gather as a whole class or combine a few groups together. Each group presents their unique chair and says a little about their design process.

#### **Reflection & Follow-Up**

- Debrief students about the activity. Ask about their process, how they felt about hands-on research and how it felt to engage with a question that has no definitive answer.
- If they’re not already familiar with the inquiry process, you can show them how they used all of the inquiry skills:
  - engaging with an interesting question,
  - working with a group to find creative answers
  - recording & analyzing their findings and
  - reporting out in their chosen way.
- Highlight their strengths as a class and the fact that they were engaged in the process. Explain that the content of their inquiry work is not assessed, only the skills and competencies they develop while doing it. You might point out one or two competencies that they developed during this inquiry.
- If there are any questions that came from the activity, point out that they could be the questions for another cycle of inquiry!