# Collaboration at the Boundary of Uncertainty

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## **BOUNDARY OF UNCERTAINTY**

**COMFORT ZONE** What a student can do now

## **LEARNING ZONE** What a student can do with help

**ANXIETY ZONE** What a student can not do yet



Our goal is to design projects that intentionally take a student to the boundary of uncertainty and to provide multiple opportunities for collaboration with peers, mentors, and outsiders. The boundary of uncertainty is at the edge of what a learner can do without help. At this boundary, a learner can only succeed by collaboration with someone who has a broader knowledge, experience or skill.

When someone supports the uncertain learner, the moment Is termed a touch-point. Touch-points are important: relieving a learner's struggle too soon does not produce the learning results and relieving them too late causes anxiety.



**Top Process** 







Base & Assembly Process





Project description: Work as a team to design a bar stool using 5/16" steel rod for the legs and pick a unique material for the seat. Complete a prototype of your final design. Fabricate 15 versions of your design, find a venue, and sell your designs to the public.

### **NEED TO KNOW MOMENTS**

- How to work with a team
- How to bend, cut, and weld steel rod
- Material properties and fabrication techniques
- Creating interchangeable consistent parts
- Use tools and fixtures in fabrication
- Find a sale venue
- Brand your product
- Advertise your sale
- Transport and set up the space
- How to handle the money



Collaboration at the boundary of uncertainty creates a self-confidence that can help push them through any problem with the right resources. It helps them take more responsibilty for their own education.

"What a student can do in collaboration today they can do alone tomorrow."