

- Activity
 - Tag-team physics of RC
 - Pairs
 - Only one person can build/be at the table at a time
 - Timed periods - each person gets 3.5 minutes to build, switch off
- Reflection
 - What did they do? - yellow post-its
 - What did the facilitator do? Green post-its
- What did they do?
 - Organize post its
 - Categorize with the Innovation Design Process/what is Innovation Design Process
 - Non-linear process by which we innovation/design things
 - Focus on iteration and hands-on
- This is Design Challenge Learning
 - Design Challenge Learning is a dynamic way to develop learners as creative problem-solvers using real-world problems. Hands-on design challenges engage learners in an iterative and collaborative Innovation Design Process and build Innovator Mindsets that are key to future success.
- What did the facilitator do?
 - Organize post-its and connect with Innovation Design Process
 - Yellow = What the teams did; Design Process
 - Blue = what the facilitator did; Innovator Mindsets
 - How did the facilitator's actions support you as the learner in the Innovation Design Process?
- Role of a facilitator DCL at The Tech
 - Guide guests through the Innovation Design Process at most open-ended experiences (SPP, BioTinkering Lab, Science Labs, Innovation Labs)
 - Open-ended questions
 - Make the experience relevant
 - Encourage
 - Validate ideas and feelings
 - Build/support innovator mindsets
 - Bold - support wild ideas, encourage creative solutions/ideas
 - Curious - encourage creative solutions/ideas, encourage trying different/new things
 - Collaborative - encourage team work; build on team member's ideas
 - Empathetic - making the experience relevant; encouraging learner to think about the end user of the product (if applicable)
 - Perseverant - encourage iteration to improve/work through difficulty. will go deeper in Embracing Failure workshop
 - In order to persevere, the learner must face some difficulty/challenge/or failure.

- How do we help the learner work through the failure to become perseverant?

FIVE MINUTE BREAK

Embracing Failure

- Discussion on failure: We're going to give each group some common failure scenarios we have seen at The Tech. In your group you are going to discuss how you as the facilitator would approach the situation.

Science Lab Scenarios

- (Physics of Roller Coasters) Jasmine, Ryan, Jose, and Victoria are second graders excitedly building their rollercoaster and working fabulously as a team. They test their coaster over and over until they get it to work 10 times in a row! When it comes time to share their final design, their marble is unable to travel even partially up the loop and falls out of the track. The team looks devastated as their coaster had performed well in all their testing.
- (Physics of Roller Coasters) Danny, Quinn, Juniper, and Rosa are fourth graders having difficulty with their roller coaster. They have built their structure and attached their track, but are visibly frustrated and having difficulty getting the marble to stay on the track. A parent chaperone has come over to help the team, but has taken over all construction leaving the team looking deflated and bored.
- (Engineering for Earthquakes) Sixth graders, Paul, Albert, Vi, and Chloe all have their own ideas for their structure and have decided to each build their parts the way they want and will then combine their pieces at the end of the building time. With two minutes left in building time, they realize they are unable to agree on how to connect their pieces and are left with four individual pieces, none of which meet the constraints or criteria of the challenge.
- Share out - What was your situation and how did your groups think about addressing that situation?
- We're trying to redefine/change the mindset towards failure - taking it from a negative and final perspective to an opportunity to learn and grow.
 - FAIL: First Attempt In Learning
 - Why we build some failure points into activities
- How we currently handle failure
 - Think back to DCL training
 - Iteration
 - Validating ideas and feelings
 - How do we handle failure when it is the result of team dynamics?
 - How do we handle a parent chaperone who can't stand to see their child (and their team) fail?
- Overview of NSF Failure in Making project

- General introduction to project
 - We are a partner on an NSF project with other museums (Minneapolis Museum of Art, Amazeum, The Bakken, Montshire & Thinkery) that looks at responding to youth's experiences with failure in making activities.
 - This is currently cohort/round 2 of this project. Our first cohort was Educator 1's back in June of 2021
 - The goal is to develop a professional development plan around responding to failure. Educator staff will be attending a series of workshops/trainings around failure in making (starting with this training!).
- Importance of helping young learners work through failure and see it as a learning opportunity.
- Reflection will be a very important part of this project
 - Reflecting on the activity and where you think failure for the learner might take place
 - What other factors might contribute to a learner feeling they've failed *besides* an unsuccessful test?
 - Reflecting on how to guide the learner through that failure.
 - Reflecting on your own practice, interactions, and engagements with the learner and failure.
 - Go over video recording aspect of project
 - Logistics around recording and how we will handle the reflection process will be covered in PD workshop #2