

TINKERING AROUND – Teaching Notes

STAR Leadership Program

Objectives

Learners will be able to:

1. Work cooperatively with peers in lab.
2. Think about how to communicate effectively to make the best model.

Materials

Tinker Toys
Stuffed animal to model

Preparation Prior to Students Entering Room

1. Set out model and cover until after students have picked out their 25 Tinker Toys.

Part 1 – Activity

1. Have students each choose 25 Tinker Toys. Do this prior to giving any information as to what they will be modeling.
2. Unveil the model.
3. Trial 1 – give students 5 minutes to build their best 3-D rendition of the target model. Have students take a picture of the final product.
4. Trial 2 – Have students choose a partner. They now have 50 Tinker Toys and 10 minutes to build their best rendition of the target model. Have students take a picture of the final product.
5. Trial 3 – Have students pair up to form teams of four. They now have 100 Tinker Toys and 15 minutes to build their best rendition of the target model. Have students take a picture of the final product.
6. Trial 4 – Have students pair up to form teams of eight. They now have 200 Tinker Toys and 25 minutes to build their best rendition of the target model. Have students take a picture of the final product.

Part 2 – Activity Debrief

1. Power point introduction to the 5 key behaviors in the STAR program. Discussed how the concepts were tied to being a scientist. Students reflected on their activity with post lab question prompts. (Below)

Post-lab Questions:

1. As an individual, what challenges did you discover while attempting to build the first model?
2. Paste into your document the photos from all four trials along with a photo of the target. Discuss how your model changed over the iterations.
3. As you moved from an individual builder to a larger group setting, how did having more pieces affect your ability to build a better model? How did having additional collaborators affect the quality of the model?

4. In terms of your final, in what way is your model a good representation of the target's features? What features of the target does your model fail to capture? Why?
5. You used Tinker Toys to build a three dimensional representation. In order to build a better model, what type of materials would you need? Be specific.
6. How did the patterns in communication change as the number of collaborators increased?
7. As the groups became larger, was there a change in how easy it was to get your ideas incorporated into the model? If so, what changed?
8. Thinking about today's lab, in what ways is building this representative model similar to what scientists do? Explain.