



Monkey Inspired Design

Collaborative Inquiry Project: Biomimicry Design Challenge

Grade Level

Grades 7-8

Engage and Explore

This activity is designed to build confidence in your students recognizing themselves as scientists and thinking critically about problem-solving. The goal is to teach concepts through discovery and to encourage using scientific thought processes. As with all lessons provided, please feel free to adapt them according to your students' abilities. You may find it more successful to lead activities and discussions as a whole group as opposed to having your students' work in small groups. Certain scientific vocabulary may or may not be appropriate for your students' level of understanding. Take these ideas, make them your own and your students will have a greater chance at success.

How can squirrel monkey adaptations inspire the design of better and safer high-rise construction equipment?

1. As a large group, have your students recall observing the squirrel monkeys during their visit to the Zoo. What behaviors did they see the squirrel monkeys doing? (Option: For groups unable to visit the Zoo, squirrel monkey behavior can also be observed through downloadable videos shared on the Zoo's Online Resource Library.) How do they think this compares to the natural habitat for squirrel monkeys in the wild? Have students share ideas about squirrel monkey natural habitat. Record students' habitat descriptions on the board in the classroom.
2. After identifying squirrel monkey behavior and discussing the use of their habitat, have the students think about any challenges that living in this particular type of forest habitat might present? Record those ideas on the board in the classroom.

Explain

3. Break students into small groups and share with each group the Squirrel Monkey Adaptation cards. Have students explore the cards looking for adaptations or features that the squirrel monkey has that help it to survive and thrive in its natural environment. Why do squirrel monkeys need these adaptations?

Expand

4. Tell student groups that humans in some high-rise construction settings can face similar challenges to the squirrel monkey in tall trees. Have students groups brainstorm what some of these similar challenges might be.
5. Using the squirrel monkey adaptations for inspiration, have student groups design a

suit/tool/piece of equipment/etc. that will be better at keeping high-rise construction workers safe while working at dangerous heights.

6. Provide each group with poster board, presentation paper, pens/pencils, markers and various art supplies for creating their design. Inform the groups that they will present their finished designs to the class.

Assess

7. Following the presentations, work with the entire class to discuss what they learned. How were the squirrel monkey inspirations different for each of the designs? Were there any inspirations that were the same? If so, how were those same inspirations used differently in each construction equipment/tool/suit design?
8. Share your work! When you and your class have completed this activity, we'd love to see what you came up with! Click the "Share Resources" button at the top of the Zoo's Online Resource Library at resourcelibrary.clemetzoo.com. From the dropdown menu, select "Document". Attach your file and complete the form on the page. Please include your school's name and the grade that you teach. When you're done, click "Submit". When we receive your submission, we'll share your class' work!

Standards

Next Generation Science Standards
Engineering Design MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.



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Supplemental Materials

Research Plan

1. Questioning
State the problem.
Make a hypothesis.

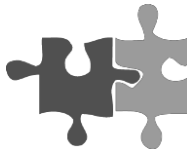


How can squirrel monkey adaptations inspire the design of better and safer high-rise construction equipment?

2. Planning
Make a plan by asking
these questions
(think, talk, write)



3. Implementing
Gather the materials.
Follow the
procedures.
Observe and
record the results.



4. Concluding
Draw a conclusion.



5. Reporting
Share my results
(informal)
Produce a report
(formal)

