Roper Mountain Science Center

Pre-Visit/Post-Visit Guide ***Lesson Name: Spy Academy***

Summary of Lesson:

Calling all agents! The world's top spy, 00Roper, has gotten into some trouble while stealing Dr. Ollie's plan for world domination from his secret island laboratory. Students will take on the role of spy agents-in-training and have to work together to engineer, implement, and modify gadgets to save him. They will learn about the relationships between force, friction, and motion using robots (Spheros) and a message-sending device of their own design. Through this lab students will design a way to save 00Roper and the world!

South Carolina Science Standards: 5.P.5A.3; 5.P.5A.4

Pre-Visit Resources

- Teacher/Chaperone Expectations: Please help us by letting us know of any special accommodations for your children prior to the lesson. Your assistance with classroom management and distribution of supplies will also be greatly appreciated.
- Instructions for Teachers: Students will work in groups of three. If you could have the students split into groups of three, it would help students get into the lesson quicker upon arrival to the lab. If your class size is not a multiple of three, one or two groups of four will work.
- Key Vocabulary: motion, force, friction, friction, distance, mass, surface, compass rose, south, east, north, west, centimeters, meters
- Discussion Questions: How is motion affected by force and mass? How does friction affect motion?
- Content Preview Video: This is a quick video that previews/reviews different types of forces and how they affect motion. https://www.youtube.com/watch?v=uoKo3DbfYZk

Post-Visit Resources

- Writing Prompt: From the perspective of your role as a spy cadet for RMSA (Roper Mountain Spy Agency), write a story about what happened to 00Roper and how you used what you learned about forces, motion, and friction to save him and save the world.
- Possible Lesson Link: This is not a lesson, but it is a list of easy activities that can be used within a lesson to help students understand forces and motion. http://www.teachjunkie.com/sciences/19-fun-ideas-resources-force-and-motion/
- Video Link: This video talks about Newton's Laws, but it includes really great explanations about the effects of force and mass on motion, and it is short and entertaining. https://www.youtube.com/watch?v=JGO_zDWmkvk&feature=youtu.be