– eduprojects: science –

All of our projects are built to the Common Core State Standards and Next Generation Science Standards to help educators teach the skills students need for success in college, careers and life. Educators, students, and experts team up on project work and incorporate 21st-century learning with today's technology.

CREATIVE MAGNETS

How electricity can induce a magnetic field that affects objects at a distance? In this project, students will follow an engineering design process to design, construct and evaluate an educational toy that uses an electromagnet to move or activate it. *Edutoys* specializes in toys that help kids learn about science and engineering. Their products consist of a kit with simple materials, instructions and a 'how it works' story explaining the science of the toy. Students are invited to design their new electromagnets kit.

EVOWORLD

How can we use the rich creativity of past and present life on Earth to inspire our art, science and technology? Evolution has taken millions of years to develop a huge assortment of solutions to the challenges that organisms face in their environment. A believable science fiction premise builds on facts and current trends to describe a world that could be, and forces us to consider our relationship to science and technology. In this project, students develop a world, setting, premise or character design for a new science fiction movie or game inspired by an evolutionary adaptation of some current or past organism and its environment.

GEOLOGY BAKEOFF

How can we use clues to solve a geological mystery? The physical properties and appearance of a rock gives clues to its geological history. Relative position of rocks in strata provides clues that help us infer the age and sequence of events that acted on that rock. In this project, students use knowledge of geology to create a cake that tells a geologic story. Students will experiment with different ingredients and cooking processes to represent igneous, sedimentary and metamorphic rocks and the processes that form them. Finally, students will hold a geology bakeoff in which students will try to uncover the mystery behind each other's cakes and critique others' interpretation of their own.

THE INTERNET OF THINGS

What does it mean to have a 'smart' device? What problems can be solved by making 'dumb' devices smarter? Combining different types of data such as identity, time, location, gives us the power to predict, coordinate and fine tune the actions of our inventions. In this project, students will design an application for adding a smart technology to a current product or structure that can solve a human problem. Students will pitch their solution to an investor based on its merits.

SCALE ANIMATION

Are there things going in the universe that we don't see because we aren't looking long enough, quick enough, close enough or wide enough? Most astronomical cycles occur over such a long period that they can only be observed by recording for a long time and then playing back at a faster rate. Students will play the role of a consulting scientist for a new educational video series from the fictitious company, *SpaceStudios*. The series producer wants to use animation to expand public understanding of the universe. Students describe some part of astronomy or earth science in a way that the public can understand and visualize. Students will write a script that explains what is being seen that will help the viewer understand the scales being shown.

SOLAR CELL CONCENTRATOR

How can we use concentrators to make solar power more affordable? If we could get our electricity from solar cells, we could avoid many environmental effects such as carbon pollution and the negative health effects from coal generation. But solar cells are expensive. In this project, students design a way to concentrate light from a large area on to a small solar cell. They must create a research grant proposal that will help them scale up their prototype solution.

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