

## 2015 STEM Camp Program Guide

**Nature** (Adventures required for NOVA Wild!)

*~Please refer to Cub Scout Handbooks for more detail*

Wolves

- Grow Something

Bears

- A Bear Goes Fishing

Webelos

- Into the Wild

Other requirements:

Visit a place where you can observe wildlife. Examples include parks (national, state, and local), zoos, wetlands, nature preserves, and national forests.

A. During or after your visit, talk to someone about:

1. The native species, invasive species, and endangered or threatened species that live there. If you visit a zoo, talk to someone about the ecosystems for different zoo animals and whether any of the zoo animals are invasive in different areas of the world. (For example, pythons are often found in zoos, but they are an invasive species in Florida.)
2. The subjects studied in school that enable him or her to work with wildlife. Examples of experts to talk to include forest ranger, wildlife biologist, botanist, park ranger, naturalist, game warden, zookeeper, docent, or another adult whose career involves wildlife.

B. Discuss with your counselor what you learned during your visit.

6. Discuss with your counselor:

- A. Why wildlife is important?
- B. Why biodiversity is important?
- C. The problems with invasive species and habitat destruction?

## **Handicraft** (Adventures required for Down and Dirty)

*~Please refer to the Cub Scout Handbooks for more detail*

### Wolves

- Digging in the Past

### Bears

- Super Science

### Webelos

- Earth Rocks!

## **Campcraft** (Requirements for Down and Dirty)

### A. Volcanoes erupt

1. How are volcanoes formed?
2. What is the difference between lava and magma?
3. How does a volcano both build and destroy land?
4. Build or draw a volcano model. If you draw a volcano, be sure to draw a cross section and explain the characteristics of different types of volcanoes.
5. Share your model and what you have learned with your counselor.

Explore a career associated with earth science. Find out what subjects you would need to study as you get older. What kind of education would you need in the future to help explore Earth? What types of people other than geologists explore Earth? Discuss with your counselor what is needed to have a career in earth science.

### **Fitness** (Requirements for NOVA Wild!)

#### 3. Explore.

- A. What is wildlife?
- B. Explain the relationships among producer, prey, predator, and food chain.
- C. Draw pictures of your favorite native plant, native reptile or fish, native bird, and native mammal that live in an ecosystem near you. Why do you like these? How do they fit into the ecosystem?
- D. Discuss what you have learned with your counselor.

#### 4. Act like a naturalist.

- A. Investigate the endangered species in your state.
  - 1. Make a list, drawing, or photo collection of three to five animals and plants that are endangered.
  - 2. Design a poster to show at least 10 of the threatened, endangered, or extinct species in your state.
  - 3. Discuss with your counselor the differences between threatened, endangered, and extinct species. Discuss how threatened animals or plants could become endangered or extinct. How might the loss of these animals or plants affect the ecosystem and food chain? What can be done to preserve these species?
- B. Investigate invasive species.

1. Make a list, drawing, or photo collection of at least five mammals, plants, fish, birds, insects, or any other organisms that are invasive in your state or region of the country.
2. Design a presentation including at least one of the invasive species from your list. Explain where they came from, how they got to your area, what damage they are causing, and  
and what is being done to get rid of them.  
Share your presentation with your counselor and your family or your den.
3. Discuss with your counselor what an invasive species is, how invasive animals or plants cause problems for native species, and how these invasive species could affect an ecosystem and food chain.

## **Aquatics**

(Some requirements for 1-2-3 Go!)

### Pool-

1. Explore TWO options from A or B or C and complete ALL the requirements for those options. Keep your work to share with your counselor. The necessary information to make your calculations can be found in a book or on the Internet. You may work with your counselor on these calculations.
  - A. Choose TWO of the following places and calculate how much you would weigh there.
    1. On the sun or the moon
    2. On Jupiter or Pluto
    3. On a planet that you choose
  - B. Calculate the height of the guard shack.

- C. Calculate the volume of the pool. Make sure your measurements have the same units—all feet or all inches—and show your work

## Lake-

### 2. Secret Codes

- A. Look up, then discuss with your counselor each of the following:

1. Cryptography
2. At least three ways secret codes or ciphers are made
3. How secret codes and ciphers relate to mathematics

- B. Design a secret code or cipher. Then do the following:

1. Write a message in your code or cipher.
2. Share your code or cipher with your counselor.

Discuss with your counselor how math affects your everyday life.

## **Ranges**

(Some requirements for Swing!)

1. Explore EACH of the following.

### A. Levers

1. Make a list or drawing of the three types of levers. (A lever is one kind of simple machine.)
2. Show:
  1. How each lever works
  2. How the lever in your design will move something
  3. The class of each lever
  4. Why we use levers

- B. On your own, design, including a drawing, of an invention that uses a lever.

Be sure to show how the lever in your design will move something.

- C. Discuss your findings with your counselor.

2. Do the following:

- . Visit a place that uses levers, such as a playground, carpentry shop, construction site, restaurant kitchen, or any other location that uses levers.
- A. Discuss with your counselor the equipment or tools that use levers in the place you visited.
  - 4. Discuss with your counselor how engineering and simple machines affect your everyday life.

STAR PARTY (a requirement completed for Out of This World)

- Have a star party with your den

HIKE TO HAMMER CREEK (some requirements completed for Science Everywhere)

- Is your local creek polluted?
- Where does your local creek run off to?
- Why do some cars have spoilers?
- Why do rockets and arrows have fins?
- What is the difference between a solid, liquid, and gas?

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