RAFT IDEAS

Topics: Anatomy, Bones, Spatial Thinking

Materials List
- ✓ Wooden ball
- ✓ White acrylic paint
- ✓ Brushes
- ✓ Black ball-points or ultra-fine tip permanent markers
- ✓ Copy of skull bones information sheet (or access to skull bone information)

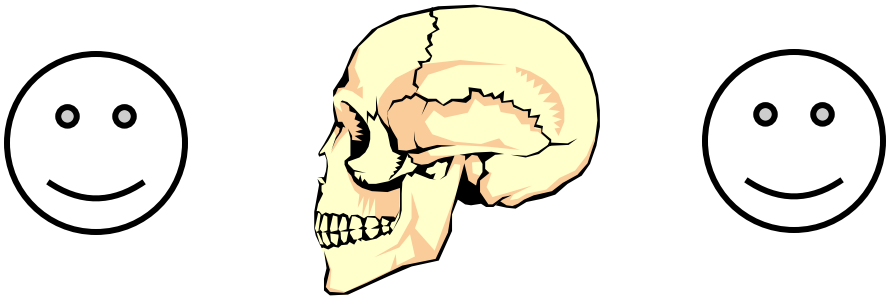
This activity can be used to teach:

- Body structures (Next Generation Science Standards: Grade 4, Life Science 1-1)

raft resource area for teaching www.raft.net

The Skull of Ball-Boy

Modeling Human Skull Bones… Sort of



What if human heads were spheres? In this activity, students are challenged to create a model of the human skull bones on a round, wooden ball.

To Do and Notice

1. Paint the wooden ball white.
2. Study the bones of the skull as depicted on an information sheet or textbook and notice that the skull has many bones, some large and some small. There are several large, flat bones that surround the brain: occipital, parietal, frontal, and temporal.
3. Begin with these 4 large cranial bones. Transfer the shape to the wooden ball as well as possible, given the differences in shape.
4. Continue in this fashion with the other, smaller bones.
5. Label as many bones as possible.
6. Discuss this challenge with classmates. What aspects presented the greatest challenge? What changes would make this model more accurate?

The Science Behind the Activity

Anatomists classify skull bones into 2 categories: cranial and facial. The 8 cranial bones rigidly join to form the vault for the brain, and the 14 facial bones form a facial framework. The larger cranial bones cover the top and back of the head: occipital (1), parietal (2), frontal (1), and temporal (2). Multiple cranial bones allow for head flexibility during birth, and these bones do not fully fuse together until years later.

Making and analyzing models in the classroom supports authentic science education:

- ✓ Students will attain a clear understanding of actual skull structure through study and analysis for the "transfer to sphere" challenge.
- ✓ In discussing how to improve the model, students will show understanding of model strength and weakness and of actual skull structure.

Resources

Excellent skull images (several views) can be found in ***The Anatomy Coloring Book***, by Kapit & Elson, plates 11 & 12 (a reference copy is available in the RAFT Green Room.)

Web Resources - (Visit www.raft.net/raft-idea?isid=385 for more resources!)
Skull Anatomy Tutorial: http://www.gwc.maricopa.edu/class/bio201/skull/skulltt.htm
Bones of the Human Skull: http://www.cliffsnotes.com/sciences/anatomy-and-physiology/the-skeletal-system/skull-cranium-and-facial-bones

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