STEM Connections at the Museum: Focus on Form and Function

Museum objects and exhibits provide tangible connections to STEM concepts. This self-guided tour features a few examples that may inspire further connections to your curriculum.

Visit our website at fernbankmuseum.org for further information and for additional downloadable resources.

Conveyed in Clay—Entry Level, concluding gallery of ***A Walk Through Time in Georgia***

Soapstone Bowl, ~3000–4000 years old
A Walk Through Time in Georgia Orientation Desk

Clay Pottery, ~300–400 years old
Conveyed in Clay exhibition

Comparing a soapstone bowl to a clay pot shows how a change in materials can have a direct effect on human culture—lighter materials supported increased movement and trade. The invention of clay pottery was a major milestone, and reflects new engineering accomplishments.

Connections to NGSS Concepts

#6 Structure and Function
The way an object is shaped or structured determines many of its properties and functions.

#9 Influences of Science, Engineering, and Technology on Society and the Natural World
Advances in science and engineering have influenced the ways in which people interact with one another and with their surrounding natural and designed environments.

Cross-Curricular Connections

Social Studies/economics, history, culture
- How did this new technology affect trade and mobility of Native American groups? How is this an example of engineering by ancient people?
- What is the meaning of the designs on the pottery?

Earth Science
What is the source of the clay and the added materials?

ELA
What does the word “temper” mean when talking about pottery?

Math
Compare the properties of solid rock to clay (i.e., thermal capacity, density)

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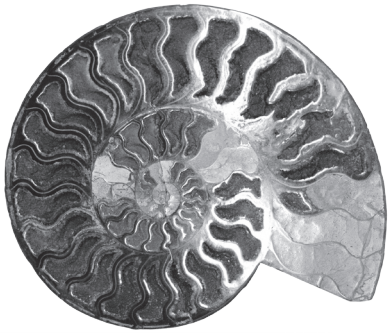
The World of Shells—Lower Level, at back of *The Star Gallery*



The chambered nautilus is a type of cephalopod related to squid and octopus, sharing key features such as large eyes, beaked jaws and a relatively large brain. As the animal grows, the open end of its shell increases in diameter, at a nearly constant rate. It is constrained to curve around the existing shell. The result is a spiral curve. The siphuncle, a tube that runs through the shell, helps the nautilus move up and down by adjusting the fluid content of the chambers.

Connections to NGSS Concepts
#1 Pattern
Patterns exists in the natural and designed world.

#6 Structure and Function
The way an object is shaped or structured determines many of its properties and functions.

Cross-Curricular Connections
Math
The nautilus shell is often cited as a real-world example of the Fibonacci Series mathematical function. While not precisely true, it's still a great opportunity to link to that discussion: lhup.edu/~dsimanek/pseudo/fibonacc.htm

Earth Science
Look for fossil ammonites, ancient relatives of the chambered nautilus, in the Museum's limestone floor tiles.

Physical Science
Explain how the chambered nautilus moves up and down in the water column (gas, pressure, density).

ELA
Look up the meaning of the words cephalopod and ammonite.

Upper Level Exhibitions

Explore these exhibits and objects that continue the focus on Form and Function. Identify the cross-curricular connections that make sense for your curriculum!

Fernbank NatureQuest
Bird Beak display in the Clubhouse: How does beak shape relate to diet?

Sensing Nature
Listening Vessels: Sit across from someone in the curved listening vessels to get an idea of how an owl's facial disk helps focus sound waves into its ears (similar to an elephant's large ears).

Naturalist Center
Dugout Canoe: How does the tree lend itself to being made into a canoe for human transportation?

Upper Level Overlook
Compare the jaws of the two types of flying reptiles soaring above the Great Hall, the larger *Anhanguera* and the smaller *Pterodaustro*. How is jaw and tooth shape related to diet and habitat?