

# **Table of Contents**

### **FORWARD**

**KEVA Planks are great for:** 

**Basic Instructions for Building** 

**Team Building and Incentives** 

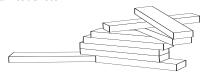
For Young Children

#### **MATH AND SCIENCE**

- 1 Counting with KEVA
- 2 Number Recognition
- **3** Reasonable Guess of Magnitude
- 4 Adding with KEVA
- **5** Subtracting with KEVA
- **6** Comparing with KEVA
- **7** Estimating with KEVA
- **9** Graphing with KEVA
- **10** Measuring Perimeter with KEVA
- 11 Area (or KEVA<sup>2</sup>)
- **12** Volume (or KEVA<sup>3</sup>)
- **13** KEVA as a Non-Standard Unit of Measurement
- **14** Measuring with KEVA for Older Students
- **15** Geometric Shapes with KEVA
- 16 KEVA Polygons
- **17** KEVA Cantilevers
- **18** Why does the Earth Look Flat?

### **SOCIAL STUDIES**

- **1** Build a Plantation
- **2** The Battle of Yorktown
- **3** KEVA Pyramids
- 4 Great wall of China
- **5** KEVA Geography
- **6** Jamestown Fort
- **7** KEVA Economics
- 8 Natural resources



#### ART

- 1 All Purpose Lesson Plan for Art
- 2 A KEVA Sculpture Garden
- **3** Form and Function
- 4 International Architecture
- **5** Moving from 2-D to 3-D
- **6** 2-Dimensional Designs
- **7** Building 3-D Themed Sculptures
- 8 Minimalism
- **9** The Same, Yet Different
- **10** KEVA Art Games

### **LANGUAGE ARTS**

- 1 KEVA ABC's
- 2 Following Directions with KEVA
- 4 Build a KEVA World
- 5 KEVA Settings, KEVA Characters, and KEVA Plots
- 7 KEVA News
- 8 Literature Links

### **Appendices**

- **A** Addition Sheet
- **B** Subtraction Sheet
- **C** Estimating with KEVA
- **D** Graphing with KEVA Data Sheet
- **E** Graphing with KEVA Bar Graph
- F KEVA Yardstick
- **G** KEVA<sup>2</sup> Template
- **H** KEVA<sup>3</sup> Template
- I Geometric Shapes
- J Cantilevers Data Sheet
- K Cantilevers Classroom Data Chart
- L Habitat Cards
- M Character Description
- N KEVA People



# **BUILD A PLANTATION**

**OBJECTIVE:** Students will create a typical southern plantation with its great house and many out buildings.

MATERIALS: 200 KEVA Planks per child

#### **PROCEDURE:**

- **1.** This lesson can be done as one large group activity where the entire group builds one plantation or in small groups, over several sessions. Approximately 1,000 KEVA planks would be necessary for each plantation.
- **2.** Discuss with the class the many buildings necessary to make a self-sufficient plantation. Compile a list: mansion, kitchen, smokehouse, stable, laundry, office, greenhouse, icehouse, spinning house, blacksmith shop and quarters for enslaved laborers. Also needed will be a vegetable garden, flower garden, park, wharf and fields.
- **3.** Plan who will build each structure.
- **4.** Build the plantation, working from the inside to the outside of the building area.

**LANGUAGE EXTENSION:** Have each student name their plantation and write about one of the following:

- A typical day on your plantation.
- Choose an occupation from the plantation and write about a typical day at your job.
- Choose a building and tell what occurs there and why it is important to the life of the plantation.





# THE BATTLE OF YORKTOWN

**OBJECTIVE:** Students will demonstrate the British defeat at Yorktown using KEVA Planks.

**MATERIALS:** 1000 KEVA Planks per classroom representation

#### **PROCEDURE:**

- **1.** After a study of the British defeat at Yorktown in 1781, tell the class that they will be making a representation of the battle.
- **2.** Divide the class into five groups:
  - The British land forces led by Cornwallis
  - The British Navy
  - The American land forces led by General Washington
  - The French land forces led by Lafayette
  - The French Navy
- **3.** On the floor of your classroom, use masking tape to mark off a rough approximation of the Yorktown Peninsula.
- **4.** Have each group study the map and decide where to place their troops or ships. Each group will decide how to represent their troops. Tents, cannons, individual soldiers, bunkers and ships can all be represented by KEVA Planks. Each group can also label their site with a small flag or just the name of the army.
- **5.** After students have recreated the site, have each group report to the class the roles of their particular military forces in the outcome of the war.

**LANGUAGE EXTENSION:** Have each student write a journal entry from a soldier in their particular regiment from a day of the battle.





# **KEVA PYRAMIDS**

**OBJECTIVE:** Students will recreate Egyptian landmarks using KEVA Planks.

MATERIALS: 100-200 KEVA Planks per child

### **PROCEDURE:**

**1.** Mark off the Nile River on the floor of your classroom using KEVA Planks.

- **2.** Assign different groups of students to research different Egyptian structures: The Great Pyramid, lesser pyramids, the Great Sphinx, obelisks, temples and houses.
- **3.** Mark off actual building sites for the pyramids and the Great Sphinx. Allow students to choose spots to place the other structures.
- **4.** Have students build the structures that they have researched.

**LANGUAGE EXTENSION:** After the Egyptian landscape is complete, have each group report to the class on what they built and why it was important to the Egyptians.





# **GREAT WALL OF CHINA**

**OBJECTIVE:** Students will recreate the Great Wall of China with KEVA Planks.

MATERIALS: 100 KEVA Planks per child

#### **PROCEDURE:**

- **1.** Talk to the students about the Chinese empire in 220 B.C. The first Chinese emperor, Chin Shih Huang Ti, faced a problem of invasion from Mongols in the North. Ask the class how would the Mongols probably attack? [Horseback] How would they fight? [Lance, sword, club] What could the emperor do to protect his people? [Build a wall]
- 2. Read the class *The Great Wall of China* by Leonard Fisher or any book on the Great Wall.
- 3. Ask the class: How many people worked on the wall? [Over 1,000,000] How many years did it take to build the wall? [Over 10 years] How wide was the wall? [Wide enough for 10 men to walk side by side] How far apart were the watchtowers? [Every 100 yards] How were the towers used? [Soldiers kept constant watch for the Mongols and set signal fires when they saw danger.] How long was the wall when it was finished? [3750 miles]
- **4.** Declare yourself to be the emperor of your class. Tell the class that they must build a Great Wall to protect their class from the Mongol invaders. Tell the class to stop whatever they are doing and begin work at once on the Great Wall.
- **5.** Determine how high and how wide your wall will be. You can divide the class into groups and assign each group a segment along the wall. It is not necessary to have a uniform style as long as you have a uniform height [two or three KEVA Plank lengths tall]. Tell the class to think about strength as they build, but to also try to use as few planks as they can so that you can make the longest wall possible. Be sure to include lookout towers.
- **6.** When the wall is completed tell the students that now they are safe from the Mongol invasion. They have built a strong wall that will protect their entire country.

### **MATH EXTENSION:** The following math applications can be used:

- Estimate the number of planks in your wall.
- How many man-hours did it take to build your wall? [# of builders x hours time spent building]
- Measure the length, width and height of your wall.





# **KEVA GEOGRAPHY**

**OBJECTIVE:** Students will construct a map of the world using KEVA Planks.

**MATERIALS:** 200-300 KEVA Planks per continent

### **PROCEDURE:**

**1.** You will need a large space, such as a gym floor, to make your map.

- **2.** Assign each group one of the seven continents. Provide students with world maps to use as reference guides.
- **3.** Agree as a class the relative position of each of the continents. These positions can be marked with an "x" of masking tape.
- **4.** As students build, the teacher can make suggestions to enlarge or diminish the size of the continents to keep their sizes relatively proportional.
- **5.** By laying planks flat and overlapping the planks, students will be able to achieve the curves needed to form the continents.
- **6.** Each group should label their continent and surrounding oceans. You can also use KEVA Planks laid flat or on edge to show the major rivers on each continent.





# **JAMESTOWN FORT**

**OBJECTIVE:** Students will build a replica of the Jamestown fort.

MATERIALS: 100-200 KEVA Planks per student or small group

#### **PROCEDURE:**

**1.** Brainstorm with the students about what would be needed to house and protect the Jamestown colonists. Pose the question: What buildings would you need to build within the fort? Create a classroom list.

- **2.** Have students compare the classroom list to the actual Jamestown fort.
- **3.** Divide students into groups and have each group build the Jamestown fort. The groups will need to decide who will build each of the structures. Discuss with the class the fact that similar decisions had to be made when the real fort was built. How will your group make this decision? How can you keep the decisions fair? (Your groups may use a voting system or a simple first-come first-serve sign up system.)
- **4**. Tell the class that the groups that work together will be more successful than the groups that argue and do not communicate. Again, links can be made to the early settlers learning to work together.
- **5.** Good planning will also ensure success.
- **6.** Ask the students to think about whether they will have enough planks left over to build the palisade. Can you build each of the structures that you need with the number of planks that you have?
- **7.** Building a fort with KEVA Planks will present several challenges due to the properties of planks. Connect this to challenges the colonists faced. Just as the students must figure out how to build a palisade that doesn't topple like dominoes, the colonists had to figure out how to quickly build a structure while still under the threat of enemy attack.

**LANGUAGE EXTENSION:** Have students write a paragraph about one part of the fort telling why it is important. They could also write an entry from a journal of a colonist working on the fort.





## **KEVA ECONOMICS**

**OBJECTIVE:** Students will explore the difference between human resources and natural resources.

MATERIALS: 50-100 KEVA Planks per student or small group

#### **PROCEDURE:**

- **1.** Be sure each child or small group gets an equal number of planks with which to work.
- **2.** Introduce the terms "natural resources" and "human resources."
- **3.** Have each child or group build a structure. You could allow any type of structure to be built or you could specify: towers, animals, vehicles or abstracts.
- **4.** After building is completed, walk around the room and compare structures. Some are tall. Some are wide. Some are curvy. Some are straight. What made the difference? [Human resources.] What was the same? [Natural resources.]

**BUILDING EXTENSION:** You could extend this lesson over several days by varying the amount of planks each group gets or the amount of workers in each group. This would allow for illustrations of scarcity to occur. Larger structures will be built by the groups with more workers and those with more KEVA planks. Discuss with the class the concept of scarcity of human resources and the scarcity of natural resources.

**LANGUAGE EXTENSION:** Have students write a brief explanation of why workers are important and why natural resources are important.





# **NATURAL RESOURCES**

**OBJECTIVE:** Students will explore how different people groups use different materials to build their dwellings based on their climate and natural resources.

**MATERIALS:** 100-200 KEVA Planks per child or small group Habitat Cards (see Appendix L)

#### **PROCEDURE:**

- **1.** Discuss with the students how different people groups use different natural resources to make their dwellings. Solicit responses from students and compile a list. For example: Sioux tepee, Inuit igloo, Powhatans longhouses, Zunis pueblos, American pioneers log cabins, and Southern plantations brick mansions.
- **2.** Ask the class, "Why were different materials used?" From their answers emphasize: Natural resources [they used what was available] and habitat [they made homes to protect them from their environment].
- **3.** As a research project, have students find one people group with a unique type of dwelling. Have students draw or bring a picture of a dwelling along with a written description of the dwelling, habitat and people group.
- **4. Building Day:** Tell the class that they are going to form small groups that will become a new people group. They will need to come up with a name for themselves and a type of dwelling. They will choose a habitat card, which will tell them their particular habitat.
- **5.** Place the KEVA Planks in the center of the room and ask the class what natural resources they have. [KEVA]
- **6.** Allow time for the students to build small-scale replicas of their dwellings.
- **7.** Have the groups present their dwelling to the class orally or by writing a travel brochure describing their habitat, people and dwellings.



Habitat Cards	
volcanic island	mountains
flood plain	desert
tropical rain forest	arctic
plains	