In the introduction to Built to Last, David Macaulay tells us that the title has multiple meanings. Beyond the physical permanence of structures such as castles, cathedrals, and mosques, their enduring importance also lies in their ability to inspire and to “fuel our own creative capabilities.” He tells us, too, that they provide a link to another time and place—a new way for you and your students to explore and think about history and their own place in it.

In this guide, you’ll find a variety of activities, discussion points, and projects to enrich the use of Built to Last in your classroom. The topics highlighted go across the curriculum and beyond it. Built to Last will take you on an educational journey. We hope you and your class enjoy the trip.

**Visiting a Real Castle, Cathedral, and Mosque**

**Raglan Castle, Village of Raglan, Southeast Wales**

David Macaulay has taken your students through a tour of the building of a thirteenth-century Welsh castle. Although Lord Kevin’s castle is not real, many castles built during that time are still dotting the Welsh countryside. You can take your students on a virtual tour of one of those castles. Go to the website www.castlewales.com/rag_tour.html and visit Raglan Castle, one of the last medieval castles built in Wales. Construction of the castle began in the first half of the fifteenth century, and additional sections were added in the sixteenth and seventeenth centuries.

Before your students begin their tour, scroll down the page and find a link to a seventeenth-century drawing of what Raglan Castle looked like in its heyday. Have your students discuss what it might have been like for a visitor seeing the castle for the first time.
Although Raglan Castle was built about three hundred years after Lord Kevin’s castle was, your students should note how the two castles look alike. As they navigate each section of the castle, have them keep a chart comparing the two castles.

From the main menu, find and click across the top of the page on Historical Essays. There your students will find essays that will help them further understand castles and life in medieval times. Of particular interest are these:

- What is a castle?
- Life in a medieval castle
- Building a stone fortress

The Cathedral of Our Lady of Chartres, Chartres, France

Take your students on a photo gallery tour of the cathedral at Chartres, France, from the website www.sacred-destinations.com/france/chartres-cathedral-photos/. Construction of the cathedral began in the twelfth century and continued on and off over the next five hundred years. During that time fires destroyed some sections, which then had to be rebuilt. Today, the Cathedral of our Lady of Chartres is almost perfectly preserved in its original medieval design. As your students move from picture to picture, they should note the similarities and differences between the Chartres cathedral and the cathedral in Built to Last.

Suleymaniye Mosque, Istanbul, Turkey

Admiral Suha Mehmet Pasa would have looked at the Suleymaniye Mosque in awe when he decided to build his own mosque. Completed in 1557, it was the grandest mosque in Istanbul, built by the great architect Sinan for the leader of the Ottoman Empire, Sultan Suleyman the Magnificent. The admiral would have had his architect design a mosque based on the work of Sinan.

You and your students can take a tour of the great Suleymaniye Mosque. Go to the web site www.saudiaramcoworld.com/issue/200605/#. Click on Virtual tour of the Suleymaniye Mosque. Listen to the orientation and then take and enjoy the tour. As your students listen to the narration, they can move the cursor across the picture and see panoramic 360-degree views of the mosque. The shift key will zoom in, and the control key will zoom out.

Curriculum Areas

History

In 1277, England’s King Edward expanded his strategy in Wales by building a series of English settlements and castles in strategic locations throughout the land. Both the castle and the settlement were tools of conquest, but each served a different purpose.

Have your students discuss how the building of castles and towns were tools of King Edward’s plans of conquest. How did towns establish an offensive position? Castles had a more defensive role. Using a chart, your students should detail the defensive fortifications of the castle.

For example:
The building of the cathedral spanned more than one hundred years. The workers were just ordinary people doing an extraordinary task. For many of them, their work on the cathedral defined their own and their families’ lives. Yet most never saw the completion of the cathedral. Your students should talk about how the workers might have felt about the work. Were they just happy to have a job? Did they get satisfaction in their work? How might they have felt about not seeing the completed cathedral?

What about present-day workers? Do they perform similar tasks? What construction professions exist now that were unheard of during the building of the cathedral? Do your students think that workers then took more pride in their work than workers do today?

Cultural Studies

The builders of mosques during the Ottoman Empire knew that with great wealth came social responsibility. Therefore they incorporated an imaret within the mosque complex. The imaret was a public kitchen that gave out food free of charge to travelers, students, workers, and the needy. It demonstrated Muslim religious teachings about charity.

A morning meal might include a rice soup with butter and chickpeas. Enjoy with your students a meal that could have been served in Admiral Suha Mehmet Pasa’s imaret. Below is a simple recipe for rice soup with chickpeas, with a few additional ingredients for flavor.

Rice Soup with Butter and Chickpeas:

- 1/4 cup butter
- 1 large onion, chopped
- 2 cloves garlic, minced
- 1 cup uncooked rice
- 8 cups chicken stock
- 1 bay leaf
- 15 ounce can chickpeas, drained
- 3/4 cup chopped roasted mild green chile
- 1 tsp. ground cumin
- salt and pepper

In a heavy saucepan, warm the butter over low heat. When melted, add the onion and garlic. Cover the pan and cook for 5 minutes. Stir in the rice and saute it briefly until the rice blanches. Pour in the stock, add the remaining ingredients, and simmer for 25 to 30 minutes until rice is soft. Serve hot and enjoy.
Science

After reading Built to Last, your students should recognize the six simple machines used by the builders of Lord Kevin’s castle, the town of Chutreaux’s cathedral, and Admiral Suha Mehmet Pasa’s mosque.

Questions to discuss:

• What are the six machines used by the workers?  
  (lever, inclined plane, wheel and axle, wedge, screw, and pulley)

• What is the purpose of using a simple machine in construction?

• Are these machines still used today?

Have your students make a chart of simple machines and the tools employed in the construction of these buildings. A sample chart is below:

<table>
<thead>
<tr>
<th>Simple Machine</th>
<th>Construction Tools</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclined Plane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheel and axle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wedge</td>
<td>Saw</td>
<td>Cut wood</td>
</tr>
<tr>
<td>Screw</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulley</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Simple Machine Hunt:

From the classroom door to the pencil sharpener to the swing set in the play yard, your school is filled with simple machines. Divide the class into teams and send them on a hunt to find as many of them as they can. Give one point for each machine found and two points if it is correctly identified. For example, give one point for naming the classroom door as a simple machine and an extra two points for identifying it as a lever. The team with the most points is the winner.
Language Arts: Reading Comprehension

The castle, cathedral, and mosque were monumental buildings designed and constructed for very different purposes. Ask your students to compare the motives behind the construction of each. Questions to discuss:

- Who commissioned each structure and for what purpose?
- Why was the location of the structure so important?
- How was each financed?
- What were the similarities in construction methods, tools, and building materials among the three buildings?
- How is the use of space different for the cathedral and the mosque?
- Lord Kevin’s castle and the cathedral at Chutreaux were constructed at relatively the same time, yet if you visited each today, the castle would probably be in ruins and the cathedral still standing and in use. Why is that so?
- Of the three structures, which seems to be the most inviting?
- What lessons can be learned from the construction of these buildings?
- How do these construction methods compare to the way buildings are built now?

Language Arts: Writing

David Macaulay wonders whether the buildings were built to last or to impress. What do your students think? Have them write essays to prove their points.

Each community has buildings of distinction; places of worship, museums, libraries, office buildings, arenas and stadiums, etc. Have each student create a script for his or her own guided tour for one of these buildings. As part of their scripts they should include the following topics:

- When was the building was built and what was its original purpose?
- How well does the building serve its function?
- Has the use of the building changed?
- Is there a particular style of architecture used in the building?
- Of what materials is the building made?
- Was the building built to last?

In their talks, they can use photographs and drawings. Enterprising students can even create power point presentations.

Language Arts: Vocabulary

The glossary at the end of Built to Last provides a review of words introduced in the text of the book. Many of the words relate to only one of the buildings. Some apply to all. Play a game with the vocabulary your students have acquired. Put each glossary word on an index card, hold up the card, and ask “Where would you find this?” Students get one point for naming the proper building and another if they can define the word and note its function.

Art

Constructing a castle, cathedral, or a mosque.

David Macaulay provides the floor plans for each building. Divide your students into construction teams and using easily available materials have them build scale models of their own castles, cathedrals, and mosques. The different parts of the structures should be labeled to identify them.

Following the assessment, the class should come up with recommendations for ways to improve the building.
Architecture

After reading Built to Last, your students should see that buildings have both form and function. Contemporary architecture and design hold that “form follows function.” This means that the shape of a building or object should be primarily based on its intended function or purpose. While this is a modern concept, can it be related to the building of the castle, cathedral, and the mosque? Open a discussion among your students about what the designers of these structures may have had in mind when these buildings were built. For example: Why did the cathedral have a soaring ceiling with no columns within the main area? Why was the mosque oriented in a particular direction? And why did the castle have inner walls and outer walls?

Turn the discussion to your present-day school. Do your students feel that the architect designed a building that meets the needs of the students, teachers, parents, and the community?

Your students should conduct an evaluation of the form and the function of your school building. Questions to answer should include the following:

- Does the building’s structure contribute to maximize the learning experience?
- Is the school large enough to accommodate the school population?
- Are the cafeteria, gym, library, and bathrooms easily accessible from all classrooms?
- Does the building provide a safe, secure environment?
- Does the building meet the needs of the school’s special needs students?
- Are there provisions for community use?
- Is the building aesthetically pleasing?

A Sample Tour

The building that houses the Lenox Library in Lenox, Massachusetts, was built in 1815. It is a Greek Revival brick building with long columns and an elegant cupola. The building served as the Berkshire County courthouse until 1868 the county seat was moved to Pittsfield, Massachusetts. A new use of the building was found when a wealthy resident purchased the building and donated it to the Lenox Library Association. In 1874 the library moved in and it has been there ever since. Besides being the home of the library, the building has housed the town’s first doctor’s office, first telephone switchboard, a jail and a bank. This is a building that was built to last.