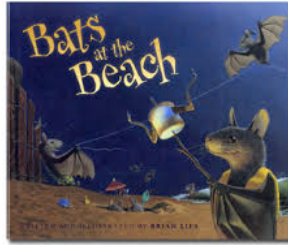


Bats at the Beach



Quick, call out! Tell all you can reach: the night is just perfect for bats at the beach! So pack your buckets, banjos, and blankets—don't forget the moon-tan lotion—and wing with this bunch of fuzzy bats to where foamy sea and soft sand meet.

Materials: “Bats at the Beach” by Brian Lies, DUPLO hula hoop, large base plates, DUPLO bricks, CAVE pictures, 3 bats for each group, tabs of duct tape.

Intro: Review rules and process of engineering.

Story:

Discussion topics for *before* reading:

Do you like bats? (Bats are good for the environment—they eat insects that attack our vegetable gardens)

- Have you ever seen a bat? Why or why not? (Bats do not come out in the daylight—they live in dark caves and come out at night)
- Do you think bats go to the beach at night?
- Have you ever been to the beach?
- What do you like to do at the beach?
- Have you ever been to the beach at night?
- What would you do at night?
- Do you think you would see any bats?

Read aloud **“Bats at the Beach”**

Discussion topics for *during/after* reading:

- Why are bats there at night? (They are nocturnal)

- What other animals are nocturnal? (owls, possums, skunks, flying squirrels, grizzly bears, sea turtles)
- What are the bats carrying to the beach? (Mice, umbrellas, moon tan lotion...)
- What would you bring to the beach?
- Is the water cold? How do you know? (The bat covering his body with his wings)
- What are the bats using to surf and sail on? (Human garbage/trash)
- Do you wear floaties at the beach?
- Have you ever been to a bonfire?
- What would you cook at your bonfire?
- Why are the bats in a hurry to leave at the end? (The sun is rising)

Ask if the beach is the normal place to find bats. Display the illustrated card showing caves. Explain ***that most bats are nocturnal. They fly and forage for their food (bugs) at night. This means that they need safe places to sleep during the day. Caves provide the kind of protected shelter in which bats can thrive. Hanging from the ceiling of a cave, bats are out of reach of most of their enemies. Some of the most successful species of bats live in large cave colonies. Some of these colonies have millions of members, even up to 20 million! Carlsbad Caverns in New Mexico once had 7-8 million, but now has about 1 million. Explain that today each group is going to work together to create a nifty bat cave for their bats to rest in, after a fun night at the beach.***

Challenge: Divide students into four groups and provide each group with three cats and three tabs of duct tape. Explain to students that they will use DUPLO blocks to build a cave for their bats. Each cave must have a ceiling, a floor and three sides. The cave must be big enough for all three bats to fit in. Once the cave is built, the must use the tape tabs to attach each bat to the ceiling of their cave!

Build: Divide students into work groups. If you like, assign one student to be the foreman. The foreman will make sure that everyone works together and presents questions to you on behalf of the group. Monitor each group by observing student interaction and asking pertinent questions, such as ***“How will you know if***

all the bats will fit? How can you make the cave bigger/smaller/taller/wider? How can you make it so that your bat's heads don't hit the floor?" Allow students time to build.

Debrief: Gather students together and discuss problems and solutions that might have come up during the build time. Ask: ***"What worked?" "What didn't work?"***

Presentation: Visit each group's construction. The group presenting are called the "Sitters" because they sit and describe what they've done. The teacher and the rest of the class are called the "Standers" because they stand around the presenters in a circle to observe and ask questions. The standers and the sitters change depending on the group presenting. As a class, decide which constructions solved the problems and why. Who created the best bat cave?

CAVE

