

Bones and Beams: Building Strong!

Introduction: How Do We Stand Tall? (10 mins)

Ask the student: How do you stand up straight? What holds your body up? What about tall buildings, how do they stay up without falling over? Introduce the idea that both our bodies and buildings have special 'insides' that give them shape and support. Today, we're going to explore these amazing support systems!

Activity 1: Amazing Skeletons (15 mins)

Show pictures/diagrams of skeletons (human and maybe an animal like a dog or bird). Discuss:

- What do you notice about the skeleton? (Lots of pieces, different shapes)
- What do you think the skeleton does for the body? (Helps it stand, gives it shape, protects soft parts inside like the brain and heart).
- Feel your own bones (arm, leg, ribs, skull). Explain these hard parts make up your skeleton and help you move and hold your shape.

Activity 2: Building Frameworks (10 mins)

Show pictures of building frames under construction. Discuss:

- What do you see in these pictures? (Beams, columns, shapes like triangles and squares).
- What do you think this frame does for the building? (Holds it up, gives it shape before walls go on).
- Explain that this framework is like the building's skeleton.

Activity 3: Let's Compare! (10 mins)

Guide a comparison. Ask questions like:

- How are bones like the beams in a building? (Both are strong, provide support, give shape).
- How are joints (like knees and elbows) similar to where beams connect in a building? (Both allow for connection points, some allow movement).
- What protects your brain? (Skull). What protects the inside of a building? (Walls and roof, supported by the frame).
- Optional: Draw a simple T-chart or Venn diagram on paper comparing 'Skeleton' and 'Building Frame'.

Activity 4: Build Your Own Structure! (20-25 mins)

Challenge the student to use the provided building materials (straws/tape, blocks, marshmallows/toothpicks, etc.) to build a structure.

- The goal: Build something that can stand on its own and support a small, light object (like an eraser or small toy).
- Encourage them to think about making it strong, like a skeleton or building frame. Ask: What shapes are strong? How can you connect the pieces well?
- Let them experiment!

- Once built, test if it can support the light object. Discuss what parts of their structure are like bones/beams and how it holds the weight.

Wrap-up and Review (5-10 mins)

Review the main ideas:

- What job does your skeleton do? (Support, shape, protection).
- How is a skeleton like a building's frame? (Both provide support and shape).
- What did you learn from building your own structure? (How pieces connect, how shapes give strength).
- Optional: Have the student draw a picture showing one way a skeleton is like a building frame.