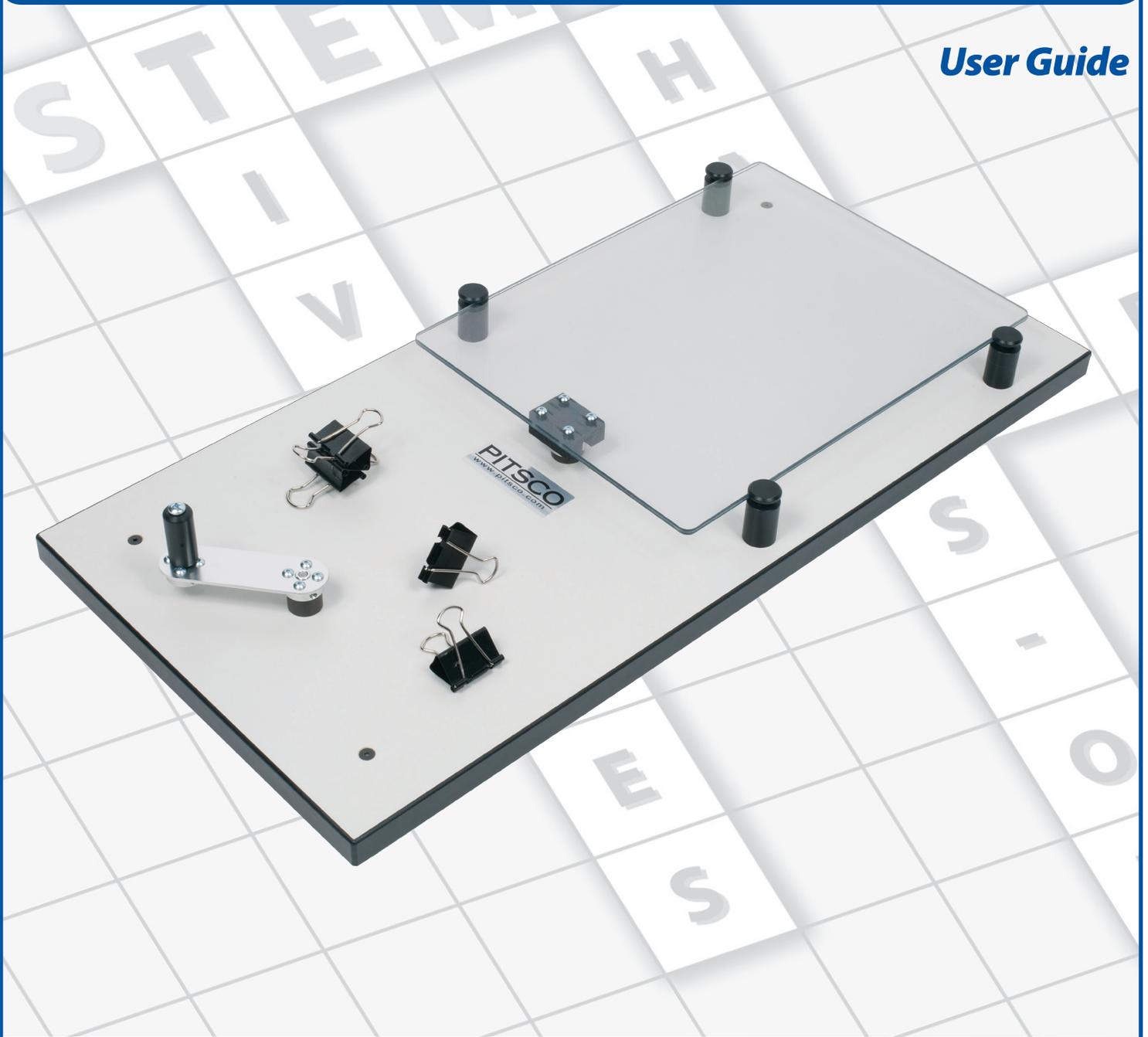


EZ Shake Table

User Guide



Cautionary and Warning Statements

- This kit is designed and intended for educational purposes only.
- Use only under the direct supervision of an adult who has read and understood the instructions provided in this user guide.
- Read warnings on packaging and in manual carefully.
- Always exercise caution when using sharp tools.

Materials Included

- EZ Shake Table
- Construction clips (4)

Items Required (not included)

- Structure (for testing)
- Cardboard sheet
- Scissors
- Glue

Using the EZ Shake Table

Note: Do not exceed a structure limit of five pounds.

1. Attach your completed structure to the EZ Shake Table with construction clips (Figure 1). **Note:** If the structure does not have a solid base to easily attach to the EZ Shake Table, cut an 8.5" x 8.5" cardboard sheet as the base for the structure and glue the structure to the cardboard.
2. Rotate the handle to shake your structure (Figure 2).

Activity Suggestion 1

Grade Level(s)

3-5

Duration

90 min

Materials

- EZ Shake Table
- Paper
- Toothpicks
- Glue

Objective

Create the tallest structures possible that can keep an object from falling off the top.

Description

Measure the length and width of the base. Find the area and perimeter of the base. Determine what base size would keep the structure from falling.

Procedures

1. Create the structure from paper, toothpicks, or other everyday items.
2. Measure the length and width and draw a diagram of the base. Find the area and perimeter.
3. Test the structure on the EZ Shake Table.
4. Discuss the results and see if there are any common occurrences in the data.



Figure 1

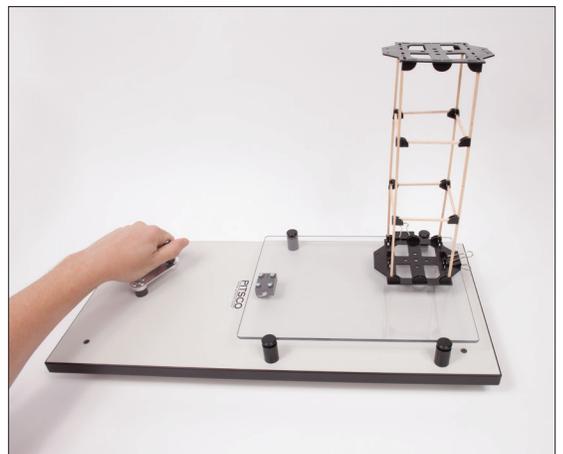


Figure 2

Subject(s)

Math

Discussion Questions

- How does the size of the base affect the stability?
- What shape is the most stable?
- How can you change the structure to improve stability?

Extension Idea

- Measure the volume of the structure if it is a regular shape.

Activity Suggestion 2

Grade Level(s)

3-5

Subject(s)

Science, Engineering

Duration

90 min

Materials

- EZ Shake Table
- Building materials such as balsa sticks, pipe cleaners, straws, or toothpicks
- Tape
- Glue

Objective

Design a structure that can resist an earthquake.

Description

Complete the engineering design process to create a structure that can resist an earthquake.

Procedures

1. Ask: What is the problem to solve?
2. Imagine: Brainstorm possible solutions to solve this challenge.
3. Plan: Determine which solution is best and create a plan for how to solve the challenge.
4. Create: Build your solution. Test it to see what happens.
5. Improve: Try to improve your structure. How can you make it better?

Discussion Questions

- Evaluate your design. Did your solution solve the problem?
- If you could use a different building material, what would it be?
- What are the real-life applications of this activity?

Extension Idea

- Build a new structure out of a different material.
- Test the strength of different building materials on the EZ Shake Table.
- Record how long the structure can stand without breaking and/or falling.

Activity Ideas

- Have students design and construct a tower from gumdrops and toothpicks. Test the structures to determine how height and/or diagonal bracing affects the structures in an earthquake.
- Have students design and construct a tower from straws and pipe cleaners. Test the structures to determine how weight and/or diagonal bracing affects the structures in an earthquake.
- Have students design and construct a paper tower using plain paper and cellophane tape. Test the structures to determine how height and/or diagonal bracing affects the structures in an earthquake.
- Have students simulate soil liquefaction during an earthquake. Students construct a layered container about the size of a shoe box from the following components (in order of bottom to top): sand (about half of the container), water (just enough to saturate the sand with no water standing on top), and a small amount of tiny gravel or dirt. Place a heavy object (brick or building made of modeling clay) on top of the mixture to simulate a building constructed on this type of land. Test this on the EZ Shake Table. Have students observe and record what happens.



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