FLINN SCIENTIFIC

Name_____

Hanging Nails Challenge Worksheet

Part I. Hanging Nails Challenge Observations

Draw the system of nails once all 10 are hanging in balance on the support nail.

Post-Activity Questions

1. Describe or use arrows to show the directions of the opposing forces acting on the nails and why they are in equilibrium.

2. When the 10-nail system is in equilibrium, is its center of gravity above or below the head of the support nail? How can you tell?

3. Why is the title, "Hanging Nails Challenge," more appropriate for this activity than "Balancing Nails Challenge"?

Part II. Exploring the Hanging Nails System

Observations

Draw or describe the position of the nails after one nail is removed.

Post-Activity Questions

4. How is the position of the nails when nine are in equilibrium different than with 10?

5. What effect does the stepwise removal of one nail at a time have on the way the nail system hangs? Describe and explain any patterns you observe.

6. Excluding balancing just one nail, what is the minimum number of nails necessary for the system to remain in equilibrium? Why do you think this is so?

7. List three other questions related to the Hanging Nails Challenge that could be answered by experimentation. Choose one and describe how you would investigate that question.