

**INDIVIDUAL Density Dilemma Activity Sheet:
The Case of the Missing Crown**

Name: _____ Date: _____ Block: _____

The Problem: In this activity, imagine that you are living in Europe in the Middle Ages. You have been summoned by the king of your land to help in a very important matter. Someone has stolen the king's solid gold crown. The king has issued a proclamation offering a reward of 500 gold coins for the safe return of his crown. The problem is that the king has received 5 crowns that appear to be made of pure gold and are identical to the missing crown. Your job is to correctly identify the gold crown, and persuade the King why your identification is scientifically accurate.

Please fill in your individual responses in the spaces provided below.

Part 1 – What do You Know?

Task 1 – Getting into your groups

1. What role were you assigned within your group? _____

Part 2 – Introducing Density

Task 1 – Discovering Density

1. What is your definition of density? _____

Part 3 – Density Dilemma Problem

Task 3 – Predicting the King's Gold Crown

1. Which crown do you predict will be the King's gold crown? _____
2. Why did you choose that crown to be the correct one? _____

Task 6 - Discussion Questions:

1. Identify the King's crown. Were your predictions correct about which crown was the one made out of pure gold? If not, explain why.

2. Explain what density means to you now. Is it different than when we first started this activity? If yes, how so?

3. What substance is each of the remaining four crowns made of?

4. Formulate a hypothesis as to how you think the fake crowns were made to look like the crown of pure gold. Remember that you are living in the Middle Ages!
