

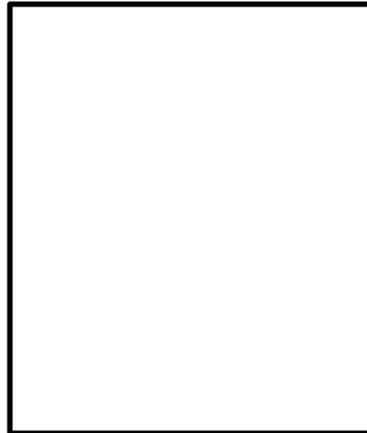
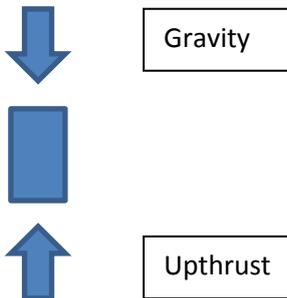
Name: \_\_\_\_\_

# Science at the Roman Baths

## Forces at the Roman Baths

Gaius Tiburinus has asked you to investigate forces at the Roman Baths.

Remember that a force is something which pulls, pushes, twists or squashes something. Force is measured in Newtons (N).



Sketch a statue

## Forces on the statues – Terrace

Mark the forces from gravity and upthrust onto your sketch.

1. A mass of 1kg gives a weight of 10N. A statue has a mass of approximately 300kg, what is the weight of a statue? \_\_\_\_\_
2. When a wind applies a force of 30N to the statue's back what stops it from falling forwards? \_\_\_\_\_
3. What properties of stone make it good for building statues?

## Skeletal forces – People of Aquae Sulis

The skeleton is shaped to allow the long bones to act as levers to reduce the effort needed for movement.

1. What type of tissue applies force to create movement? \_\_\_\_\_
2. Explain why movement muscles always attach on both sides of a joint.

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The longer the lever, the less force is required to move an object.

3. Why do you think most Olympic rowers are over 6 feet tall?

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4. If longer limbs are better, why do animals not keep getting larger?

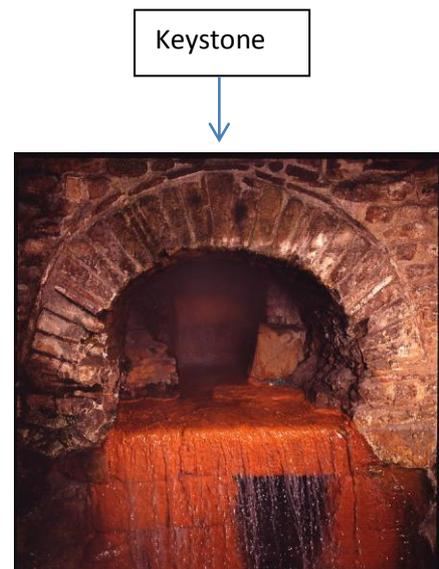
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### Forces and arches – Spring Overflow

1. Mark the force of gravity onto the diagram. Show where and in which direction it is acting.
2. What would happen if the keystone was taken away?  

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3. Explain what this shows about the forces on the keystone?  

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### Forces and pulleys – Building the Baths

Read the information by the pulleys and use both pulley systems to lift the stone.

1. When you lift both stones: a) Which one takes more effort to lift  

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- b) On which one do you need to pull the rope the furthest distance?  

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Draw a diagram to show the difference between the single and double pulleys.

