

STUDENT PACK

D) MISCELLANEOUS TASKS

Materials

Simple Machines

Canal Lock

General Milling



Beeleigh Mill – Materials

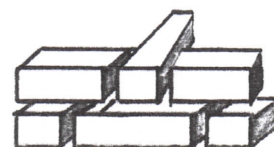
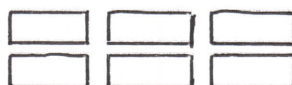
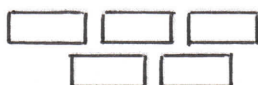
- 1) The characteristics of a material are called its '**Properties**'. Make a list of 3 **materials** and their **properties** when used to build the mill in the box below:

| | | | |
|-----------------|--|--|--|
| Material | | | |
| Property | | | |

- 2) Circle 3 materials from the list below which can be used to make concrete:

Sand Oil Water Flour Cement powder Pebbles

- 3) Tick below which brick pattern is the strongest for a wall:



- 4) The 3 states of matter are:

| | | |
|--|--|--|
| | | |
|--|--|--|

- 5) Which type of matter is air-like and shapeless?

- 6) Water boils at: -10 C 0 C 100 C

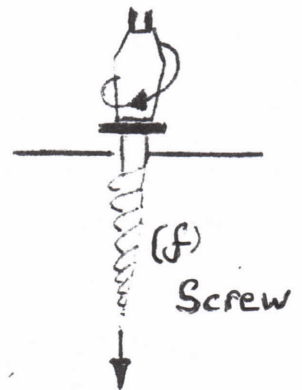
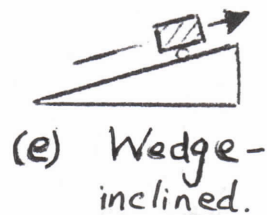
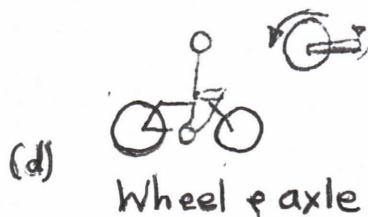
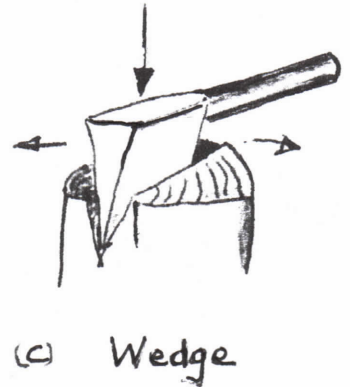
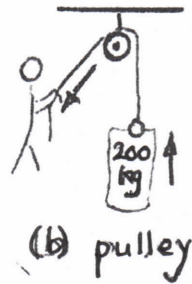
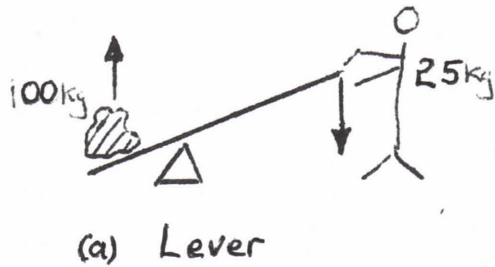
- 7) Boiling Water into a **Vapour** (gaseous state) involves the process of:

- 8) Water changes from a **Liquid** to a **Solid** state at : +1 C 100 C -1 C

- 9) The **property** of allowing heat to pass through a material involves its **conductivity**. A poor **conductor** is a good **insulator**. Which material from (1) above is the best insulator?

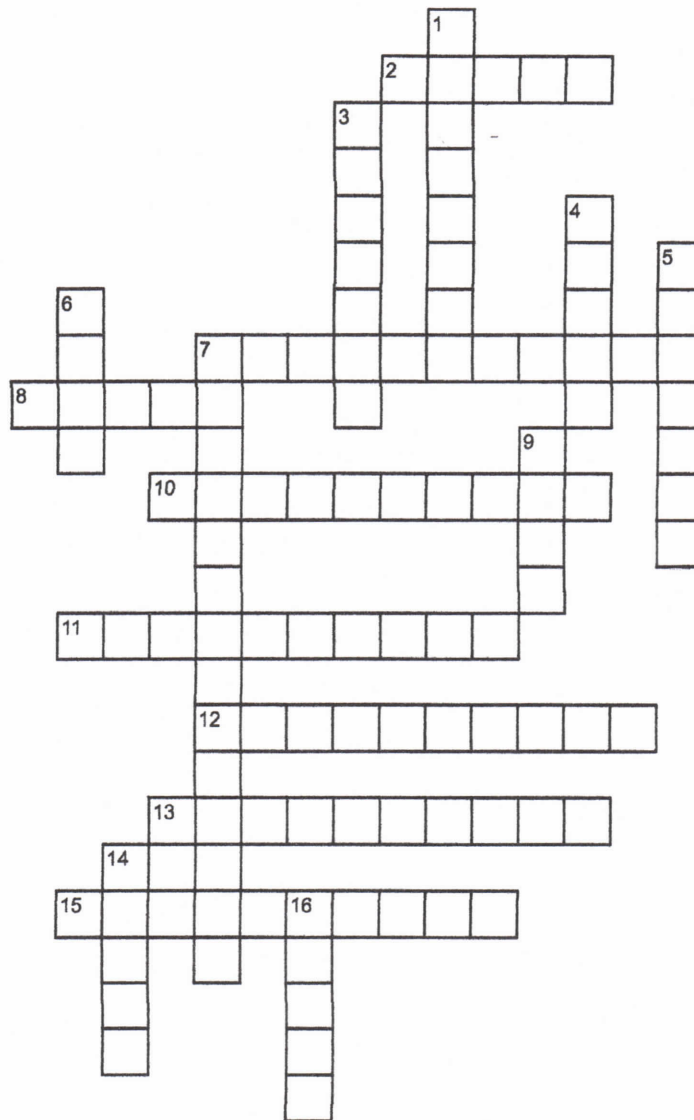
Beeleigh Mill - Simple Machines

Simple Machines



- 1) Which method(s) above can be used for lifting a 100kg sack of flour 200cm above the ground?
- 2) In (a), if the lever (beam) is in balance with a person sitting at one end, what are the balance distances either side of the fulcrum?
- 3) Effort is the force used to do: housework, homework or mechanical work
- 4) Load is the volume, density or force used by a machine to do work.
- 5) The fulcrum is a fixed point around a point around which a machine can turn.
True/False
- 6) If the Mechanical Advantage (MA) = Effort Arm / Load Arm, what is the MA for diagram (a)?

Beeleigh Mill



Across

- 2 water affected by tides due to the phases of the moon
- 7 building which houses the steam engine
- 8 man-made waterway controlled by locks
- 10 ground floor for collecting flour and houses hurst mechanism to drive millstones
- 11 first floor which housed millstones
- 12 river in Essex which flows south and east into the North Sea
- 13 horizontal fixed bed stone and runner stones for milling grain
- 15 a mechanical device for trapping energy from running water using paddles

Down

- 1 a diverted channel from waterway towards a mill
- 3 area which held raw coal as fuel for the boiler
- 4 end result of milling a grain, e.g wheat
- 5 river in Essex which flows east 65km into the the Blackwater Estuary
- 6 a stone or wooden platform used for unloading and loading from a waterway
- 7 horizontal cast iron boiler providing hot water for steam
- 9 device for raising and lowering boats and other water craft
- 14 a flat-bottomed boat used on canals and rivers for freight
- 16 a grain used in making flour

Beeleigh Mill

Forward, Backward or diagonal - cross through or circle

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | N | B | E | K | D | S | E | N | O | T | S | L | L | I | M | T | N |
| O | A | Z | Z | N | M | W | A | H | T | A | E | H | W | Q | T | P | N |
| F | X | U | P | I | G | H | I | P | X | C | E | W | D | I | N | D | R |
| N | E | Y | E | T | R | I | A | Z | Z | N | W | C | D | W | X | R | M |
| P | S | G | M | O | Y | V | N | V | R | A | C | A | M | R | H | K | B |
| S | V | F | Z | L | C | O | A | E | T | U | L | T | O | O | W | J | Y |
| R | R | P | O | W | R | T | T | E | H | O | O | L | V | O | M | Q | T |
| J | N | C | O | V | J | O | R | A | W | O | A | L | Z | L | Z | D | B |
| F | K | L | I | R | F | W | O | H | X | N | U | Z | F | F | A | T | L |
| T | M | Y | G | Z | H | C | D | L | A | K | W | S | F | E | I | Q | A |
| G | I | O | D | E | P | E | O | C | F | B | H | W | E | N | T | N | C |
| G | L | D | E | H | R | G | O | A | R | T | K | P | Z | O | B | T | K |
| N | L | L | P | H | C | R | U | R | L | W | U | C | B | T | I | Z | W |
| E | R | Q | V | T | J | A | J | O | H | P | Q | O | X | S | H | M | A |
| N | A | J | Q | L | N | B | J | O | C | R | I | Y | P | V | B | C | T |
| L | C | I | H | Y | M | P | B | Q | U | A | Y | T | R | S | L | O | E |
| K | E | L | E | P | H | A | N | T | B | O | I | L | E | R | L | V | R |
| D | K | Q | B | R | H | D | O | P | R | E | M | L | E | H | C | O | X |

BARGE
BLACKWATER
CANAL
CHELMER
COAL PIT
ELEPHANT BOILER

ENGINE HOUSE
FLOUR
LOCK
MILLRACE
MILLSTONES
QUAY

SPOUT FLOOR
STONE FLOOR
TIDAL
WATER WHEEL
WHEAT