

**Key Vocabulary**

**Lighthouse:** a tower or other structure containing a beacon or light to warn ships at sea.

**Lighthouse keeper:** the person who used to be in control of the lighthouse and also lived there.

**Automated:** operated by automatic equipment, no human control is needed.

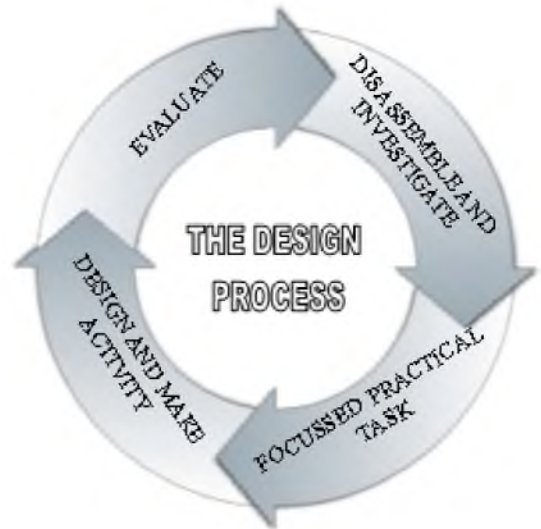
**Unmanned:** to not have a human presence.

**Cylindrical:** like a cylinder shape.

**CAD:** computer aided design, to use a computer to help with the design of something.

**Control:** to use a computer to make something happen.

**CAD vocab:** shape, hole, grid / workplane, group, ungroup, drag, duplicate.



**Key activities that MUST take place**

**This unit is different from other DT units, it is mostly going to be a CAD unit: it will NOT follow the usual cycle.**

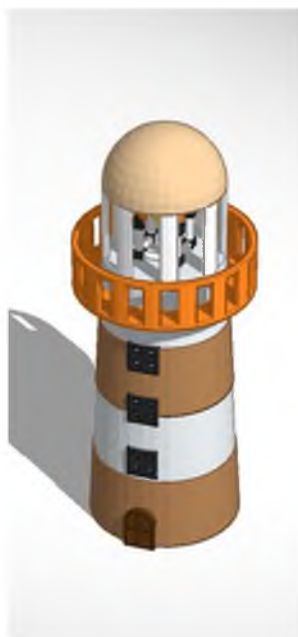
**Stage 1:** Using the internet, investigate lighthouse design from round the world and through history.

**Stage 2:** Learn how to use Tinkercad.

**Stage 3:** DMA: design and make a lighthouse (on CAD) with a working circuit.

**Stage 4:** Make a prototype out of paper (this is their only chance to make a prototype so please do it) Children need to know how to fix a cylinder to a flat base with strips glued & stapled to the inside of the tube / onto the base.

**Stage 4:** Use the built in control software on Tinkercad to make a sequence of instructions to make the lighthouse circuit work. (It is very similar to scratch software)



**Key skills:**

1. Learn to use Tinkercad software.
2. Make a lighthouse via CAD.
3. Learn to make a prototype from paper.
4. Use control to add a circuit and control the lighthouse.
5. Learn about key individuals and events in DT have helped shape the world. (this could be done as LGT)

**Sources of support:**

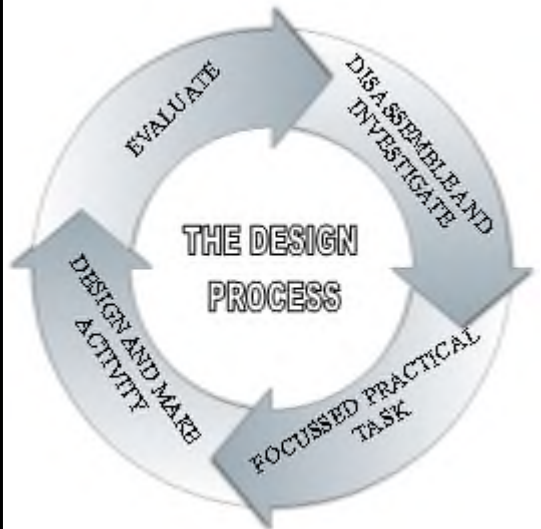
Getting started with Tinkercad, guidance in shared area.

<https://www.tinkercad.com/things/7G45y63Q75I-lighthouse>

(you can tinker with this lighthouse design on their website)

**Key Vocabulary**

- Grown:** food which has been planted in the ground.
- Reared:** an animal which has been raised from a young before being slaughtered to produce food.
- Caught:** animals which have grown up in the wild then been caught and slaughtered to produce food.
- Processed food:** food which has had a chemical or mechanical operation performed on it, e.g. processed ham, ready meals.
- Bridge:** a knife hold used to cut food in half.
- Claw:** a knife hold used to slice or dice food.
- Cheese grater:** a kitchen implement used to shred cheese into small pieces.
- Scales:** kitchen equipment designed to measure the amounts of dry ingredients.
- Measuring jug:** kitchen implement used to measure wet ingredients.
- Dough:** made by mixing flour, water and flavourings.
- Knead:** to squeeze and stretch the dough with your hands to develop the gluten.
- Pizza:** Italian circular savoury dish made of a base coated in tomato, cheese and other toppings.



**Key activities that MUST take place**

- Stage 1:** Investigate shop-bought pizza, talk about the different ingredients used. Sort ingredients into grown, reared, caught and processed.
  - Stage 2:** FPT: learn how to chop using bridge and claw holds, learn to use a cheese grater.
  - Stage 3:** DMA: design a healthy pizza that will appeal to children. Include an exploded diagram in their plans (see bottom of page for example)
  - Stage 4:** Evaluate.
- NB: Anne Winter will help you out, if you talk to her in plenty of time.

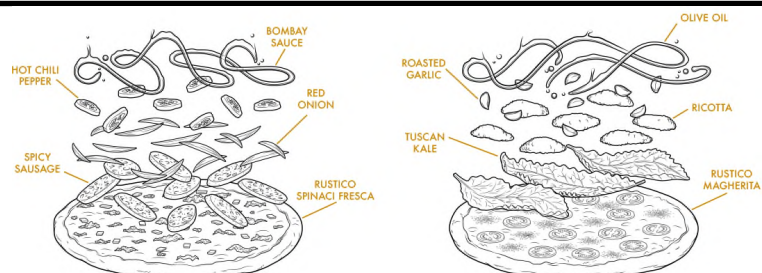


**Key skills:**

1. Use a cheese grater.
2. Use bridge and claw cutting holds.
3. Weigh with scales.
4. Measure with a measuring jug.
5. Knead dough and roll it out.
6. Learn about key individuals and events in DT have helped shape the world. (this could be LGT)

**Sources of support:**

- \* Cooking guide in the DT subject folder
- \* <https://www.youtube.com/watch?v=BdXjLJNWu44> bridge hold
- \* <https://www.youtube.com/watch?v=wVJUD8SSQRA> claw hold



**Key Vocabulary**

**Chassis:** the body of the vehicle.

**Axle:** part of the car the wheels are attached to.

**Electric vehicle:** runs on battery power not diesel or petrol.

**Friction:** the force created when one surface rubs against another.

**Forces:** the push or pull on a object that makes it change speed or direction.

**Engineering:** a branch of science / DT concerned with design and use of engines, machines or structures.

**Wood strip:** strips of wood which are cuboid shapes, they are cut with a saw.

**Dowel:** strip of wood which are cylindrical in shape.

**Chamfer:** to sharpen to a slight point.

**Perpendicular:** meets at right angles.

**Parallel:** always the same distance apart.

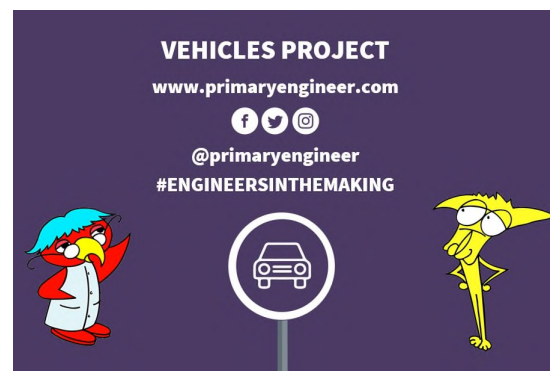
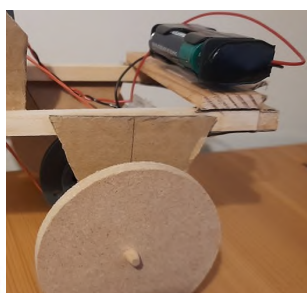
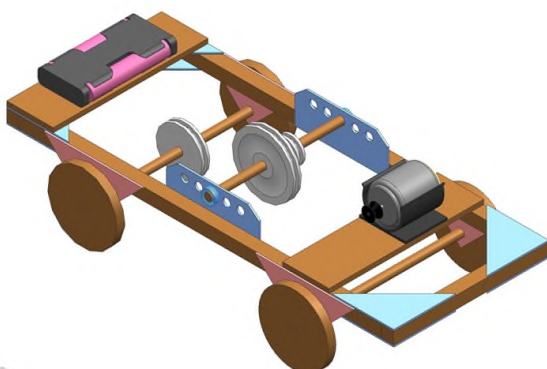
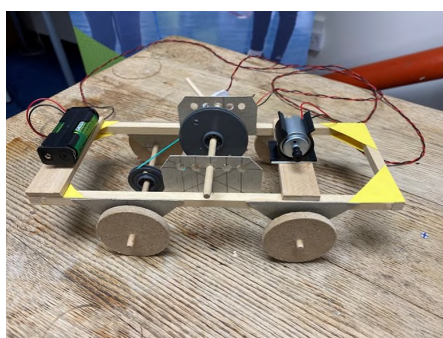
**Pulley:** a wheel with a grooved rim (in which an elastic band will sit in this case) which can change the speed or direction of a force.

**Key skills:**

1. Use a gent's saw.
2. Use a single hole punch
3. Use non standard measures (ruler width / lollipop stick width)
4. Use triangle corners to make a chassis.
5. Use pulleys to make gears.
6. Make an electrical circuit (with a switch)
7. Test and refine the vehicle.

**Sources of support:**

- All resources from the primary engineer class-room resources (ppts, workbooks, lesson plans)



**Key activities that MUST take place**

**NB this unit does not follow the usual DT cycle**

- Step 1; measure and cut wood.
- Step 2; make right angles and isosceles triangle supports.
- Step 3; measure and cut baton wood.
- Step 4; make a cardboard gear box.
- Step 5; assemble the chassis.
- Step 6; attach axle holders.
- Step 7; add baton supports.
- Step 8; add the gear box.
- Step 9; add the wheels and gear axles.
- Step 10; add the motor and battery pack.
- Step 11; measure, cut and strip the wire.
- Step 12; twist the wires.
- Step 13; wire up the motor.
- Step 14; connect the battery clip.
- Step 15; make the switch.
- Step 16; complete the circuit
- Step 17; connect the pulleys.
- Step 18; test your vehicle.

