

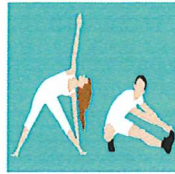
Threshold Concept

- How people’s physical, intellectual, emotional and social well-being are linked.
- To recognise what is health and well-being and what influences it.

**What are P.I.E.S.:**

Physical  
Intellectual  
Emotional  
Social

All of these make up the definition to what is health and well-being.



Physical



Intellectual



Emotional



Social

As we move through the life stages our P.I.E.S. develop. We focus on the three primary life stages:

- Childhood (0-18)
- Adulthood (18-65)
- Old Age (65+)

Using this information you should be able to:

- Define what is health and well-being
- Describe the different life stages.

You should be able to use this knowledge to describe how humans develop physically, intellectually, emotionally and socially across the different life stages.

Humans grow and develop across all life stages. However our growth and development can be influenced by several factors, mainly, healthy eating.



**The five food groups!**



Fruit and vegetables



Proteins



Carbohydrates



Dairy



Fats and sugars

In order to have a healthy balanced diet, you must consume the correct amount of the five food groups. Having a healthy balanced diet can affect your growth and development across all three life stages. A mothers diet can even influence her unborn child's growth and development!

We also experience every day feelings that can impact our growth and development. One of these is stress. Stress is the body’s reaction to feeling under pressure.



Stress gets to us all. However, there are plenty of ways we can deal with stress.



There are numerous ways in which we can deal with stress. Some of the most effective are either listening to music or spending time in nature. This helps relax the body and in turn can relax the mind, helping to cope with stress.

**Impact of life events on P.I.E.S.**

Often life events can have an impact on our health and well-being. This means that certain life events can impact on your physical, intellectual, emotional and social health. There are two types of life events, **expected** and **unexpected**.

These are some examples of different life events that occur across the life stages;

- |                     |                 |
|---------------------|-----------------|
| First day of school | Buying a house  |
| First words         | Retiring        |
| First job           | Getting married |
| Making a friend     | Having a child  |

**Unit guiding question:** What is the purpose of a mechanism?

The threshold concept that is truly essential to enable you to access future learning is ...

Mechanisms convert one type of motion into another.

Understand different types of motion and what mechanisms are used to convert them from one to another.

Understanding that there are inputs processes and outputs for every mechanical system.



**There are 4 types of motion**

**Linear motion**

The walker goes along in a straight line.



**Reciprocating motion**

The weightlifter lifts the weights up and lowers them. He does work in both directions.



**Rotary motion**

A person cartwheeling

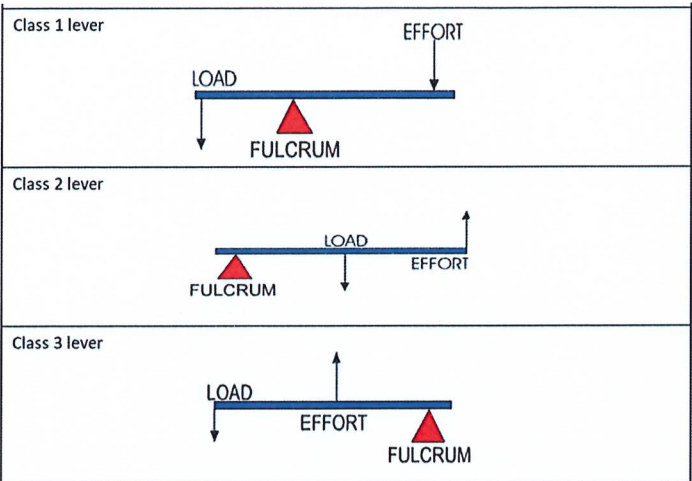


**Oscillating motion**

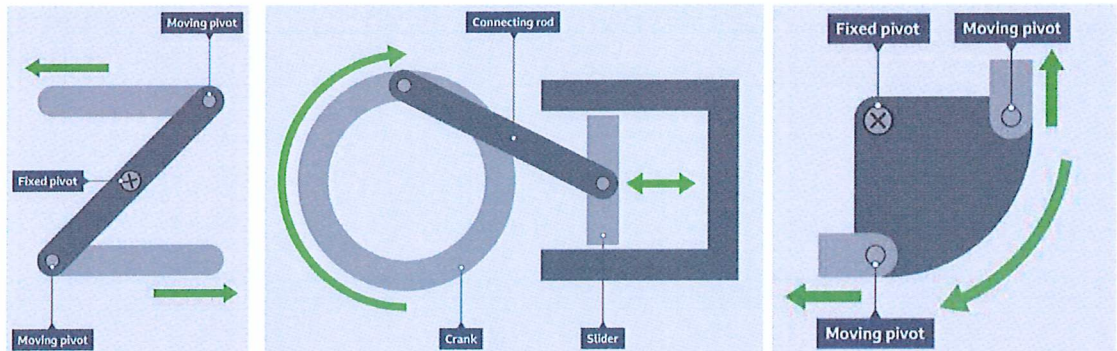
The footballer's leg swings back and forth. Only the first half of the action performs work.



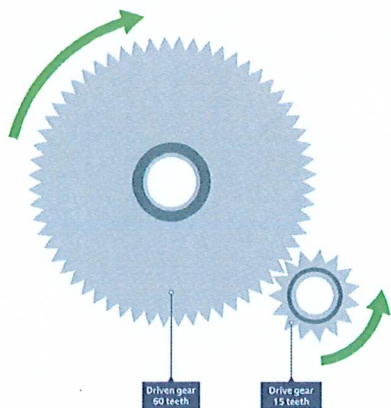
**Levers** are simple machines. There are 3 classes of lever determined by where the load, effort and fulcrum are positioned.



Some mechanisms are combinations of levers linked together. These are called linkages. They convert one type of motion into another.



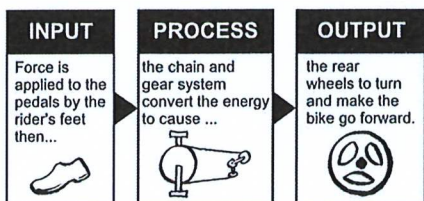
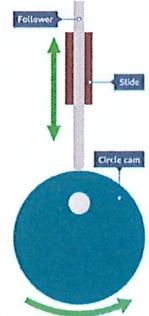
**Gears** are wheels with teeth around the outside. When several wheels are interlocked, they can transfer motion from one place to another and can change the speed and direction of the output.



**Cam mechanisms** have two main parts:

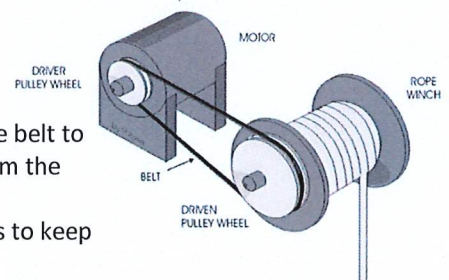
a **cam** - attached to a crankshaft, which rotates.

a **follower** - touches the cam and follows the shape, moving up and down



Systems diagram for a bike as a mechanism

**Pulley and belt systems** use the belt to transmit motion and power from the driver shaft to the driven shaft. The pulley wheels have grooves to keep the band or belt in place.



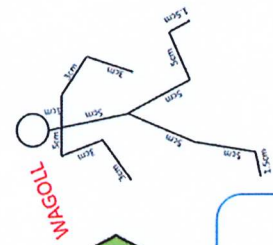
### Metals.

Learn about Ferrous and non ferrous metals and their source.



### Stick Figure.

Learn to draw accurately and in proportion. Understand Anthropometrics



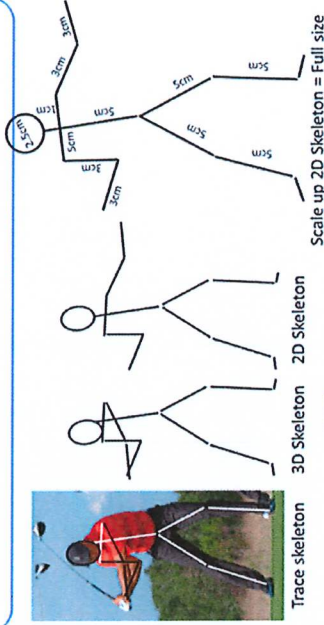
### Research.

Find suitable sporting action figure. Consider including sporting equipment to the design



### Develop research into a stick figure design.

Trace a skeleton on picture. Convert skeleton from 3D to 2D. Transform 2D skeleton into accurate full size figure using the dimensions given.



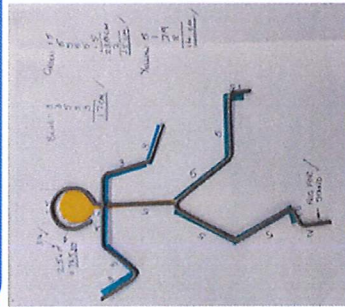
### Brazing.

Clean metal with Emery Cloth. Using Flux & Brazing alloy to joint the pieces together



### Form metal to 'Template'

Hold 'work' in vice and 'form' into shape by bending. CHECK against your template to see if it is 'formed' accurately



### Objectives:

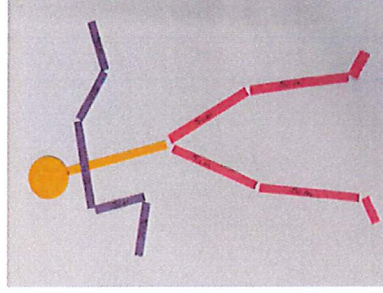
To work independently from instructions you have written

To use hand tools in a safe way to avoid injury



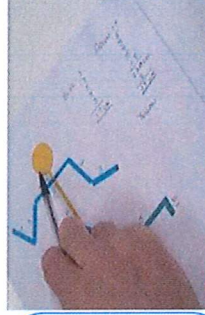
### Modelling.

Using 3 different colours of card, make a card model. Arrange pieces and develop a final design - glue pieces in position to create the Template of your design.



### Material Requirements

Add the total length of each colour to find out EXACTLY how long each of the THREE pieces needs to be. DON'T FORGET to add 2cm for the 'stand peg'



Length of material for head:  
Diameter of head x Pi (2.5 x 3.14) = 7.8cm

### Essential Knowledge

- You will learn how to analyse a design brief
- You will learn about anthropometrics and learn about the importance of proportion and the sizes of the human body
- You will learn how to analyse pictures and discuss them.
- You will learn about metals and their properties.
- You will learn about using accurate measurements
- You will develop your design skills and learn the importance of annotation.
- You will learn how to work with and shape metal as well as how to join metal
- You will evaluate the work of others and your own work