



Design out the box



Lesson Objectives...

- To understand the basic tools used in SketchUp.
- To understand the advantages of using CAD
- To be able to successfully use CAD independently to complete a range of tutorials in 2D and 3D
- To develop advanced skills and problem solving skills when using SketchUp

Lesson Outcomes...

By the end of this tutorial you will be able to...

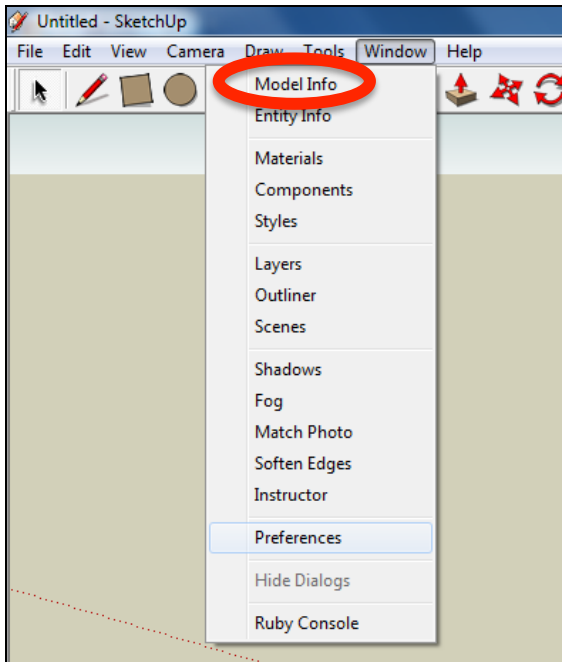
- Use the push pull and move tool
- Learn about centre lines
- Create, Move and Rotate components
- Use the offset tool to make objects and add detail
- Shape and form your design
- Colour and render your design

Skills to be used in this project...

| Basic Skills | New and Higher Skills |
|----------------|-----------------------|
| Zoom tool | Rotate tool |
| Orbit tool | Move tool |
| Pan tool | Offset tool |
| Line tool | Arc tool |
| Rectangle tool | Follow Me tool |
| Circle tool | Paint Bucket tool |
| Eraser tool | 3D Text tool |
| Push/Pull tool | Making Components |

Basic skills are those required to do very basic drawings and are detailed as part of this presentation.

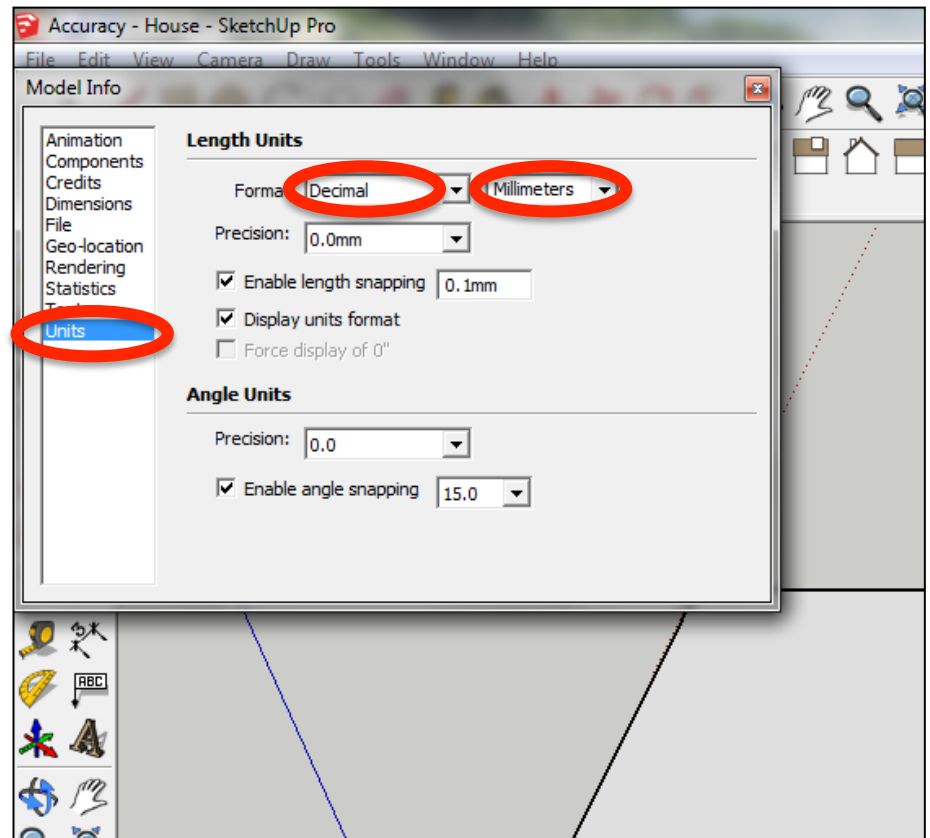
New and higher skills may be new to the novice and are the focus for learning in this presentation.



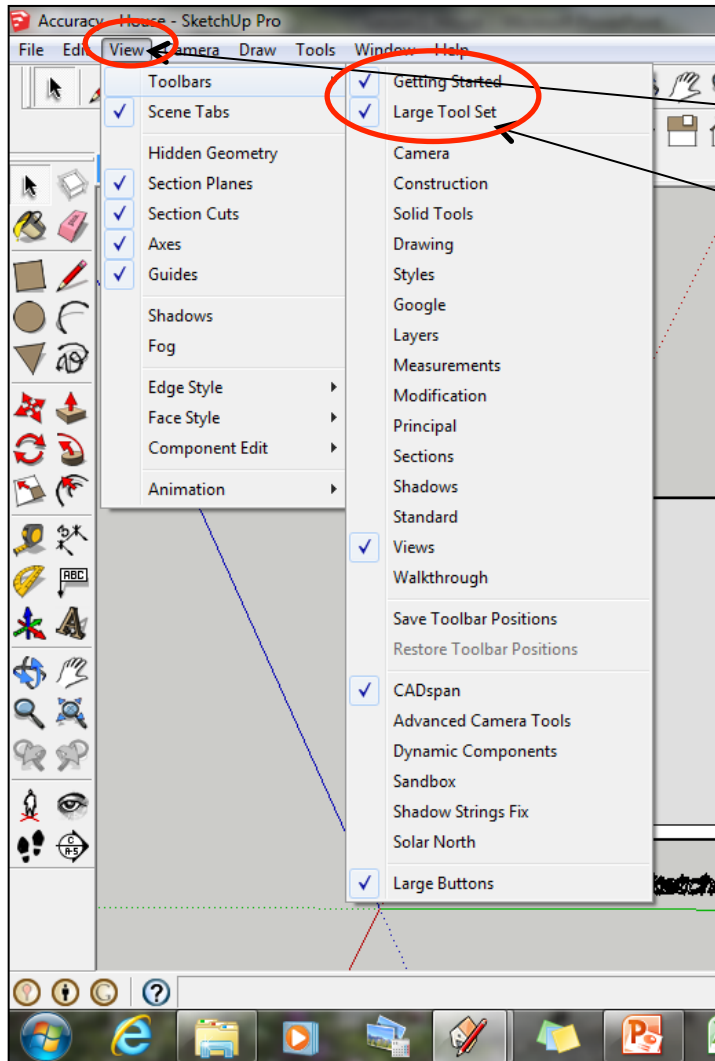
1. Open the sketch up drawing. Once you have opened SketchUp, go to **Window** and select **Model Info**

2. Select **Units** and choose **Decimal Millimetres**. We are using this template because we are doing a product design.

Note: It is often necessary to start a new file to use the new template. Go to **File** then **New**.



3. Now select the **View** then **toolbars** and ensure **Getting Started** and **Large Tool Set** are ticked



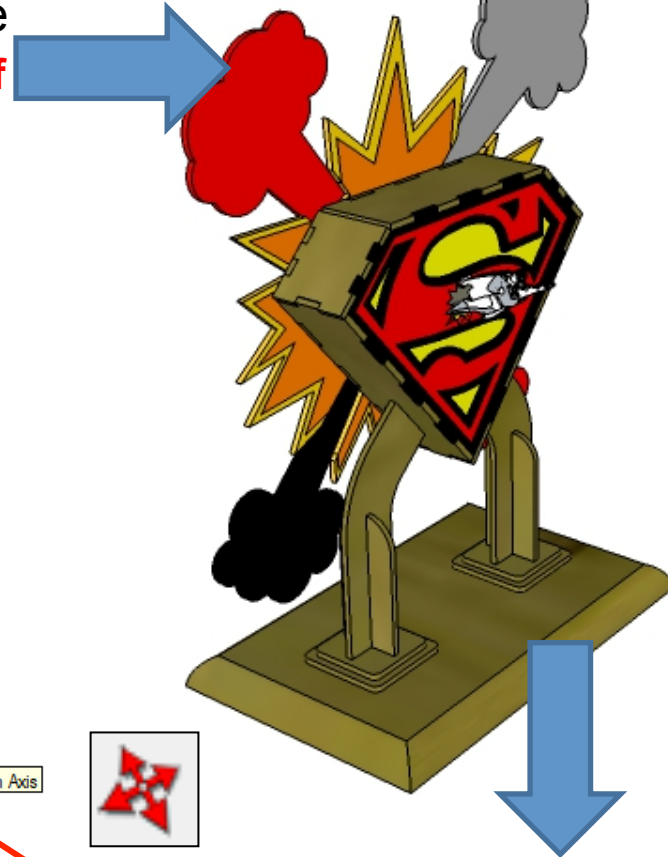
3a Select **View**

3b Tick Getting Started

3c Tick Large Tool Set

Note: this will place a tool bar across the top (**getting started**) and the side (**Large Tool Set**)

4. Instead of drawing a product this time we are going to take it apart. **NB: This only works if you have correctly drawn all the pieces and grouped them so they can be flat packed for manufacture**



5. Using the **move tool** hover over the superman, it will indicate you are over it by going blue. Click and move the part outwards along the **green axis**.

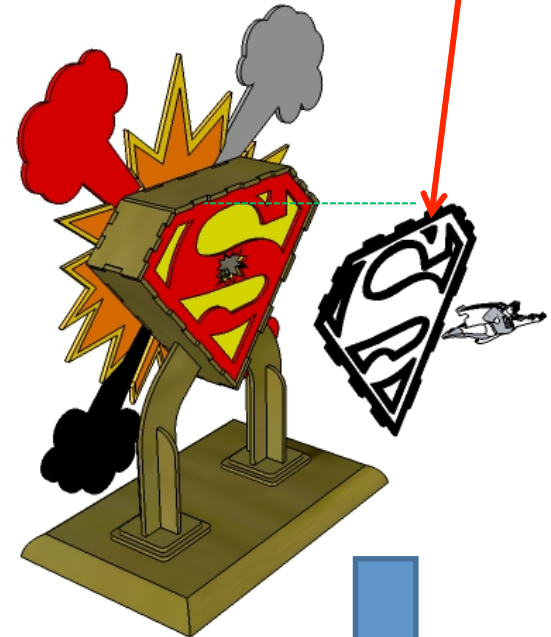


6. Type in **200** and **press enter**.

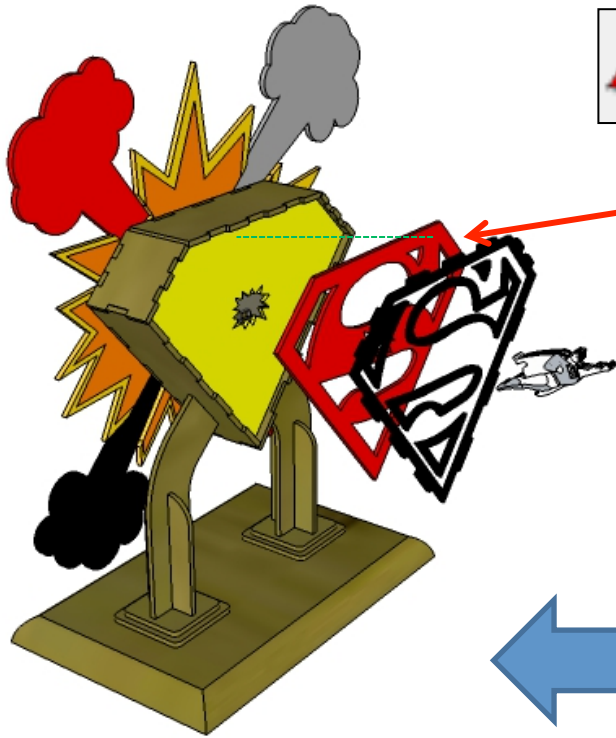


7. Using the **move tool** hover over the **black superman logo**, it will indicate you are over it by going blue. Click and move the part **outwards along the x-axis**

a)



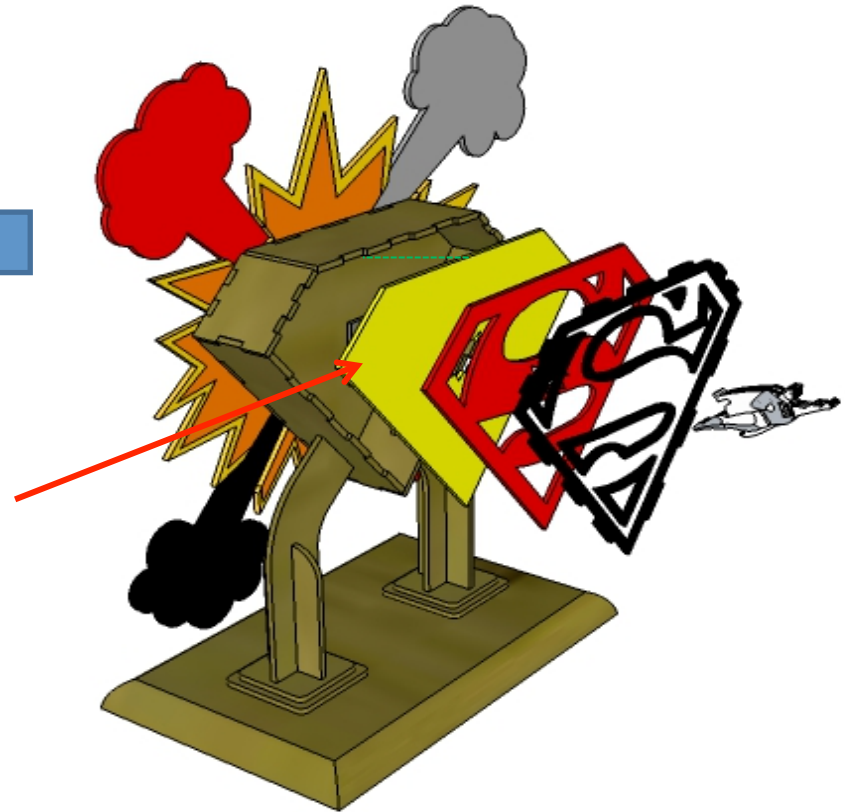
ter.

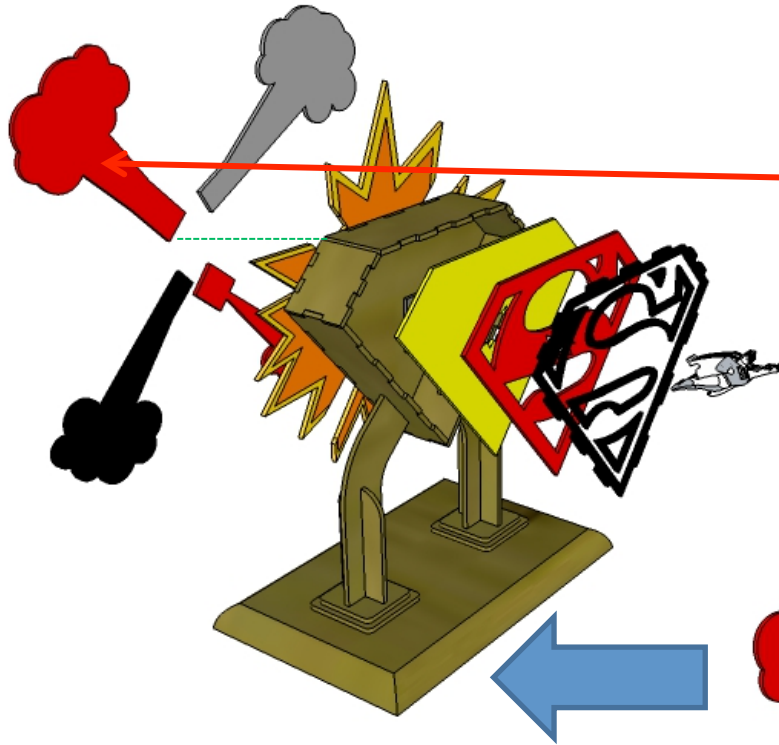


8. Using the **move tool** hover over the **red superman logo**, it will indicate you are over it by going blue. Click and move the part outwards along the **green axis**.

Type in **100** and **press enter**.

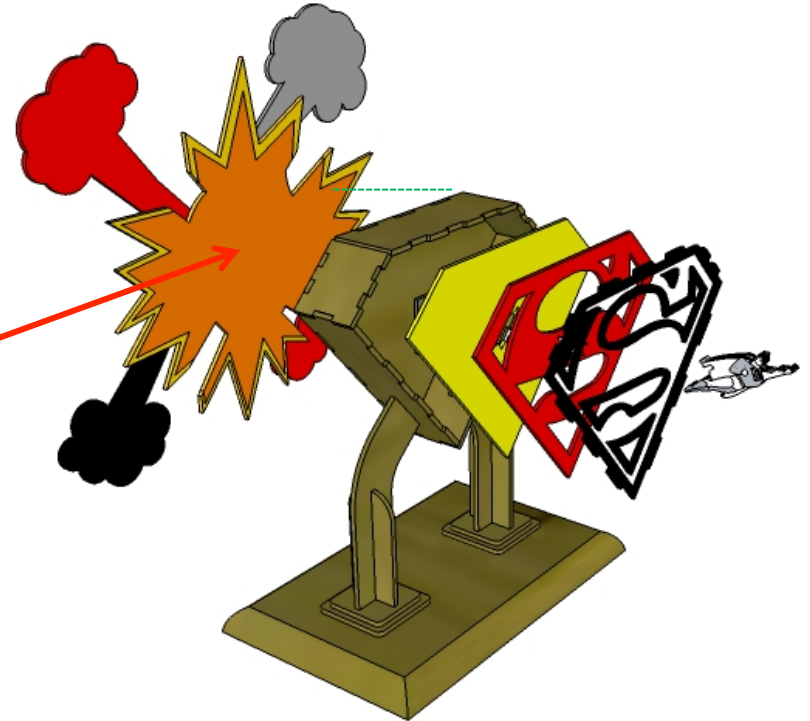
9. Using the **move tool** hover over the **yellow superman logo**, it will indicate you are over it by going blue. Click and move the part outwards along the **green axis**.



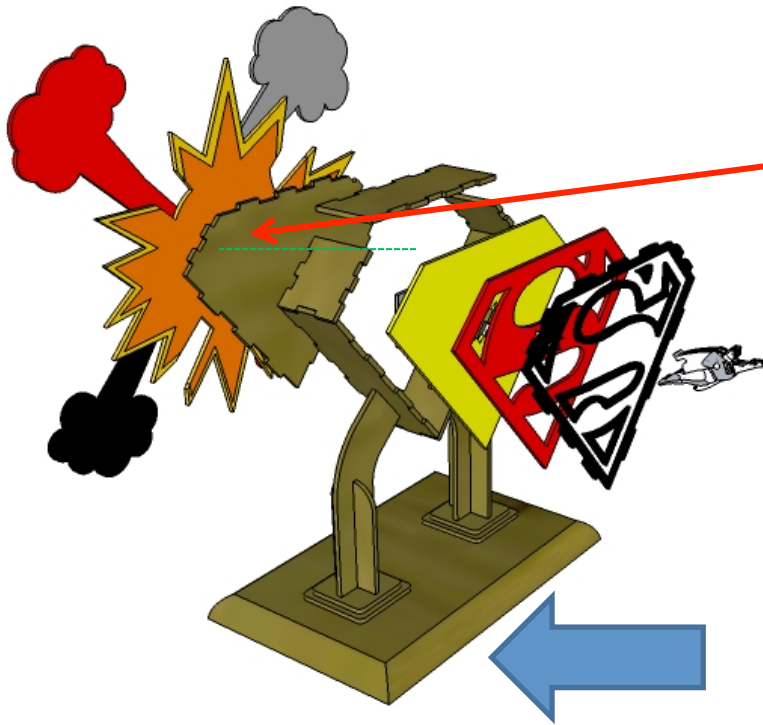


10. Using the **move tool** hover over the **smoke design**, it will indicate you are over it by going blue. Click and move the part backwards along the **green axis**.

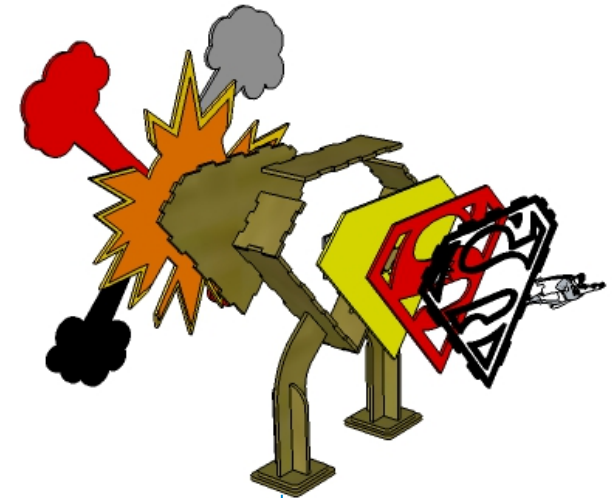
11. Using the **move tool** hover over the **explosion design**, it will indicate you are over it by going blue. Click and move the part backwards along the **green axis**.



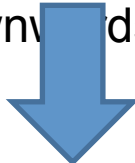
Type in **50** and **press enter**.



12. Using the **move tool** hover over the **back frame piece**, it will indicate you are over it by going blue. Click and move the part backwards along the **green axis**



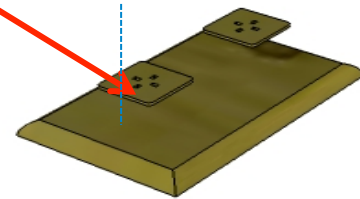
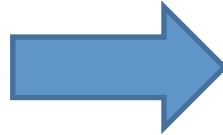
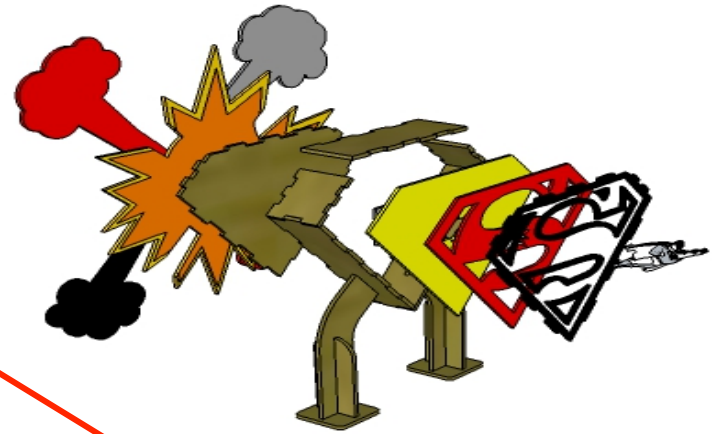
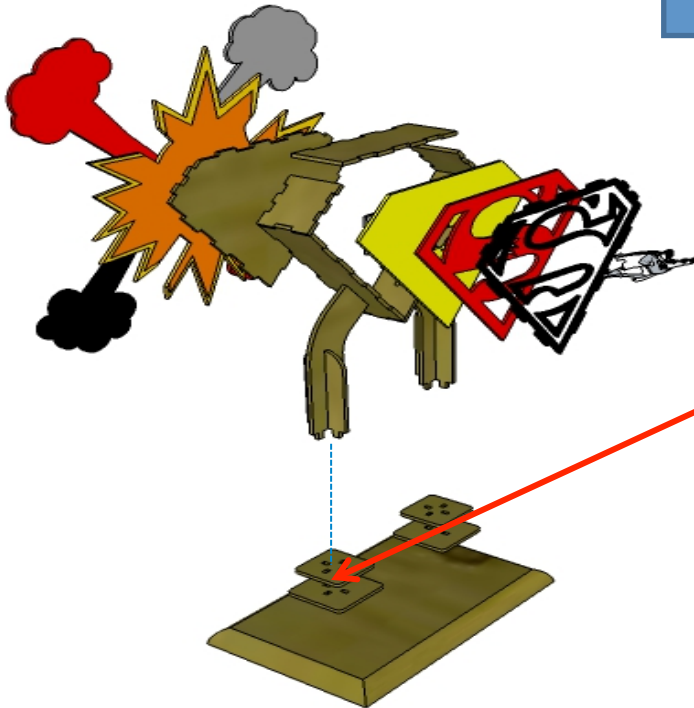
13. Using the **move tool** hover over the **wooden base piece**, it will indicate you are over it by going blue. Click and move the part downwards along the **blue axis**.





14. Using the **move tool** hover over the **wooden leg base pieces**,

they will indicate you are over them by going blue. Click and move the parts downwards along the **blue axis**.

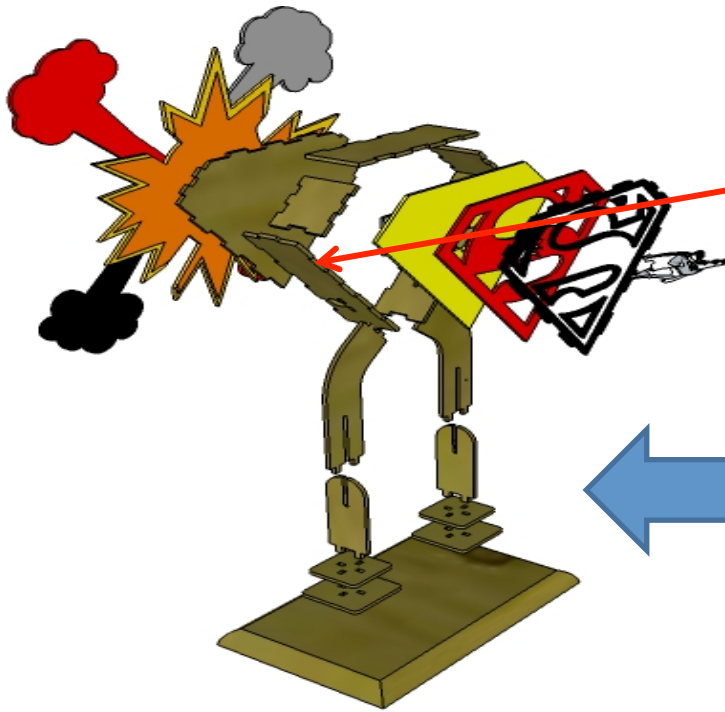


15. Using the **move tool** hover over the **wooden leg base pieces**,

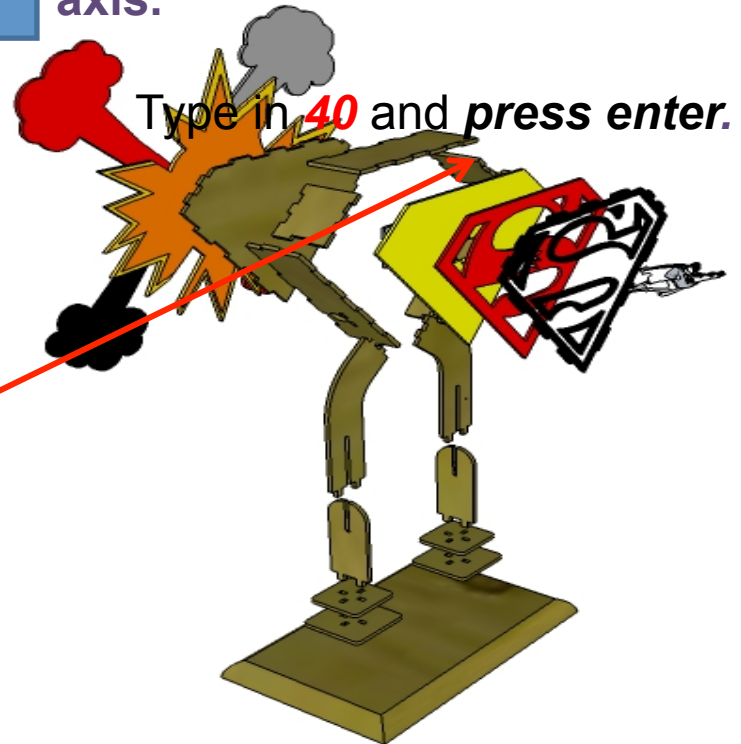
they will indicate you are over them by going blue. Click and move the parts downwards along the **blue axis**.

Type in **175** and **press enter**.





12. Using the **move tool** hover over the **side frame piece**, it will indicate you are over it by going blue. Click and move the part backwards along the **red axis**.



12. Using the **move tool** hover over the **side frame piece**, it will indicate you are over it by going blue. Click and move the part backwards along the **red axis**.

Type in **40** and **press enter**.