

Beams Investigation

Which beam is the strongest?
How does the shape impact the strength?

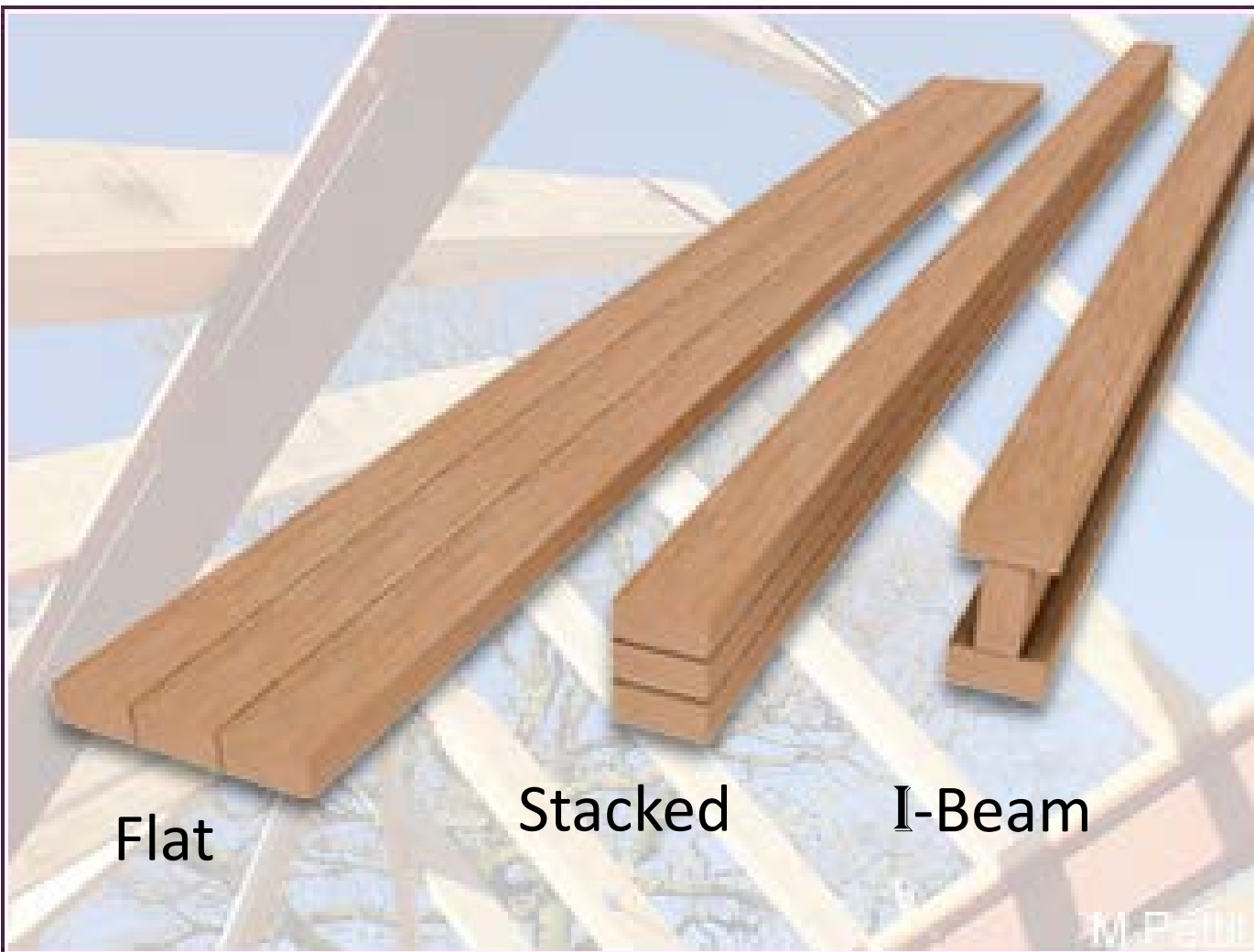
Making the Beams

1. Using permanent marker, put your names on ALL of the pieces of wood.
2. Decide who will be making the different beams

Two people teams will make two beams (stacked beam and I-beam)

Three people teams will make three beams (stacked beam, I-beam and flat beam)

Person One	Person Two	Person Three (Three person Team ONLY)
Stacked Beam	I-Beam	Flat Beam
		



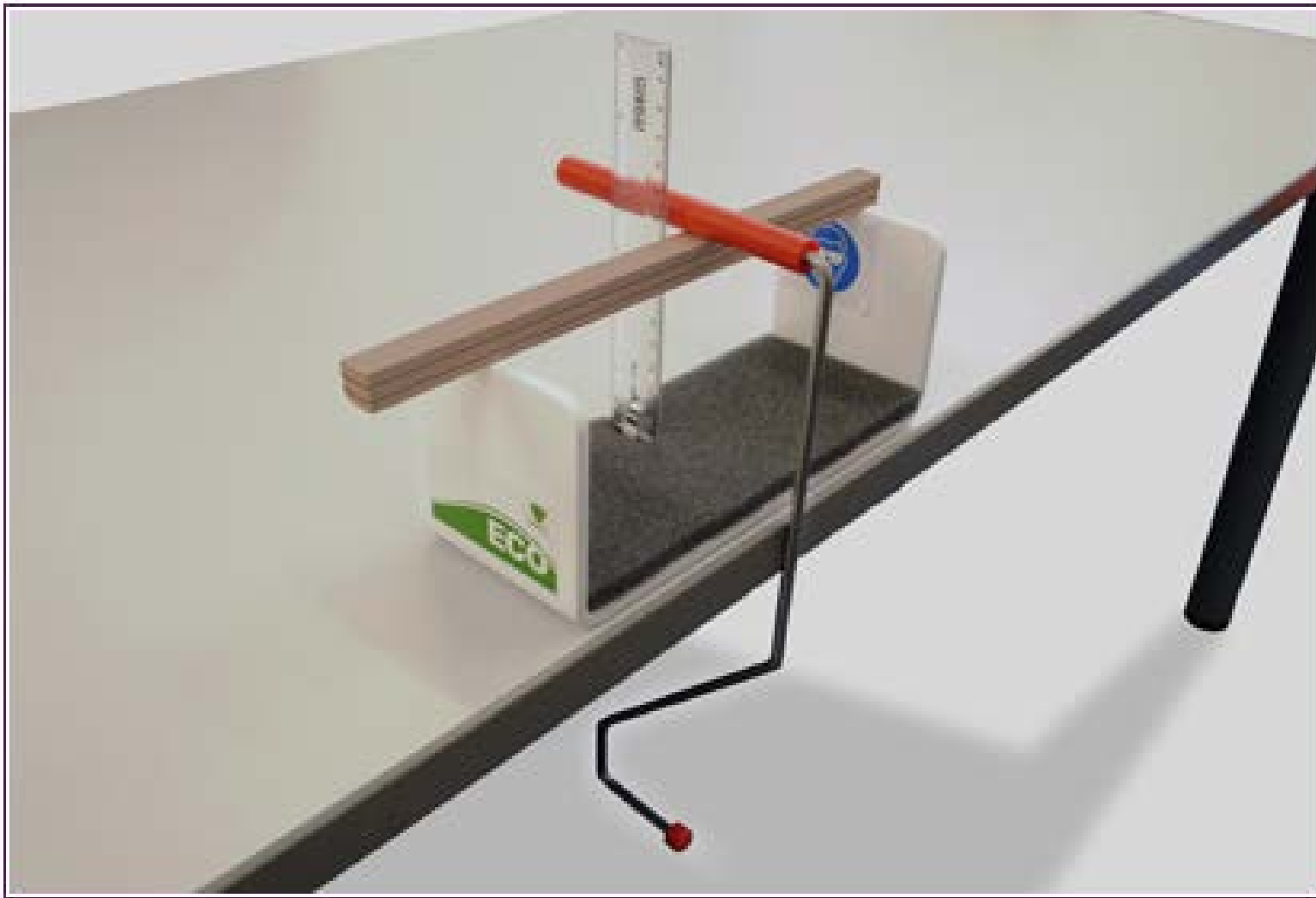
- PUT YOUR NAMES on ALL the wood strips
- Glue the balsa wood strips together to make the three beams shown.
- **Make sure you can see your names.**
- Hold them together until they are able to stay together on their own.
- **Copy the data table from grearengineer in your journal below where you wrote the questions**

Data Table

- Copy this in your journal on Beams Investigation Page.
- You may have to add rows if your beam exceeds 1,500g.
- The next slide shows you how it should look in your journal

Mass in g	Deflection in mm		
	Flat Beam Starting: _____	Stacked Beam Starting: _____	I-Beam Starting: _____
0 (support only)			
100			
200			
300			
400			
500			
600			
700			
800			
900			
1,000			
1,100			
1,200			
1,300			
1,400			
1,500			

Mass in g	Deflection in mm		
	Flat Beam	Stacked Beam	I-Beam
	Starting —	Starting —	Starting —
0			
100			
200			
300			
400			
500			
600			
700			
800			
900			
1,000			
1,100			
1,200			
1,300			
1,400			
1,500			
1,600			
1,700			
1,800			



Testing the Beams

This is the set-up for testing the beams.

Pay attention to where the ruler, beam and hook are.

The centimeter side of the ruler goes beside the beam, with 0 up.

Testing Beam Directions

- Add masses (one at a time) to the beam, and record the deflection of the beam until it fails.
- Repeat the test for the other beam(s).
- Answer the questions you wrote on Thursday.