

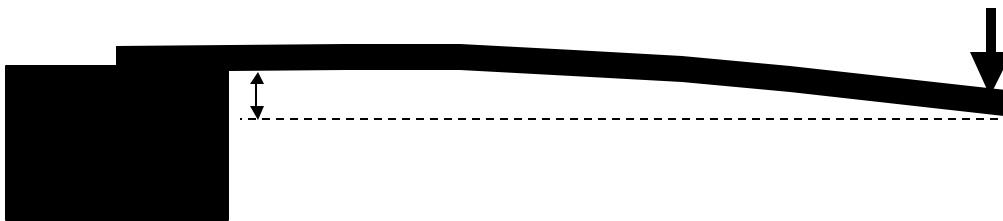
## Cantilevers

A cantilever is simply a rigid plank of wood, a beam, or a pole which is fixed at one end.

An example is a diving board:



When a force is applied to the free end, the cantilever will bend.



1) Name as many variables as you can think of relating to the situation in diagram "B," just above.

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2) Describe how some of the variables you just named might be related to each other (for example, how do you think the "amount of bending" depends on the "amount of force applied")?

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3) Use materials as shown in the diagram below to investigate the situation in Diagram B, as follows:

a) Measure the amount of bending that occurs for different amounts of force applied. Draw a graph that represents your data. How are these two quantities related?

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b) Do you think this is a function? Why or why not?

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c) (Optional) Find an equation that is a good model for this relationship.

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d) Measure the amount of bending that occurs for different cantilever lengths, with the same amount of force each time. Again, graph your data. How are these quantities related?

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e) Do you think this is a function? Why or why not?

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f) (Optional) Find an equation that is a good model for this relationship.

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## Cantilever Investigation

