

# OBJECT RELOCATION DEVICES

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## MOVING AN OBJECT

### THE PURPOSE...

In this activity you will be designing, constructing and using a device to relocate an object the furthest distance without touching it. There are some specific parameters:

- The object may only be held by the machine within a 10 foot radius drawn from the centre of the device
- The object must travel it's distance unaided - **ONLY** the object may travel from point A to point B
- The device must appear to the instructor to be safe
- The device must be small enough that two people can move it
- The group must spend no more than \$15 in materials (you will supply receipts - I recommend using scrap or free materials)
- The device must be constructed and assembled at school

This is to be a group activity, with no more than four and no less than two students per group.

You will also need to be resourceful. Essentially **no raw materials will be provided** for this activity, you will need to resource and supply your own materials.

## THE PREPARATION...

For this activity, you will need the following:

- |                          |               |                          |                             |
|--------------------------|---------------|--------------------------|-----------------------------|
| <input type="checkbox"/> | Pen or pencil | <input type="checkbox"/> | Creativity                  |
| <input type="checkbox"/> | Ruler         | <input type="checkbox"/> | Design skills               |
| <input type="checkbox"/> | Eraser        | <input type="checkbox"/> | Motivation                  |
| <input type="checkbox"/> | Paper         | <input type="checkbox"/> | Ability to work with others |
| <input type="checkbox"/> | Raw materials |                          |                             |

## THE PROCEDURE...

There are four steps to this activity. All steps are worth marks, and must be completed **in order**.

### STEP ONE - BRAINSTORMING

Your group must sit down and brainstorm ideas on how to move a object. Sketch at least **10 different designs**. You may designate one person to draw the pictures, or you may split the drawing responsibilities within the group.

In the lower right corner of the page, determine the effort each group member contributed to the brainstorming.

ie: Bert - 10%  
Ernie - 50%  
Snuffy - 20%  
Telly - 20%

If the effort is not recorded, it will be assumed that nobody did the work.

You should begin thinking about what materials you need, what you can get, and each member should be responsible to acquire some materials.

An Orthographic drawing is one that depicts three sides of an object. There is no "depth perception" *per se*, but much detail is shown.

## STEP TWO - FINAL DRAWING

Submit for approval one good, final, orthographic drawing. Be as **detailed** and **thorough** as possible. If your instructor can not tell what it is you have drawn, you will have to do it again.

You may wish to consider the following in your design:

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/> Materials  | <input type="checkbox"/> Weight        |
| <input type="checkbox"/> Mechanisms | <input type="checkbox"/> Cost          |
| <input type="checkbox"/> Safety     | <input type="checkbox"/> Adjustability |
| <input type="checkbox"/> Durability |  |

In the lower right corner of the page, determine the effort each group member contributed to the drawing. If the effort is not recorded, it will be assumed that nobody did the work.

## STEP THREE - CONSTRUCTION

The members of your group should take responsibility of certain tasks in the device's construction. This is where you must work at communicating with your team and work together. You will have to be **motivated**, **productive**, and **cooperative** with each other. You can not sit around and let others do all the work - there is not enough time for that, and you will drag your team down.

If you have any questions or thoughts or concerns about your design during the construction stage, ask your instructor for help - he will **not** tell you how to build it, but he will help you achieve your design, and may give suggestions to help you succeed.

Submit a piece of paper with receipts or copies of receipts for the materials purchased for the project. In the bottom right corner, determine the effort each group member contributed to

the drawing. If the effort is not recorded, it will be assumed that nobody did the work. Be honest. If you are doing the work of yourself **and** your team member, you should get more credit.

## STEP FOUR - TESTING

Sadly, you will have one test day, one object and one shot only. Make sure your device will work without fail! If you are absent that day, you may be hooped.

Each team will set up their device at the launch location (to be determined). Each team will be given one object. Each team will "re-locate" their object one at a time, so that it may be determined which object belongs to whom. Teams who launch at the same time will be disqualified.

Marks will be determined solely on performance.

Furthest distance	=	100 marks
next lowest	=	90
next lowest	=	80
next lowest	=	70
etc...		

## THE CONCLUSION...

You are finished when you have a complete, fully functional object-relocation device.

## THE REFLECTION...

- What would you do differently if you had to do this all over again?
- How have you improved as a designer, fabricator, group member?
- How much did you contribute to the group?