

CHALLENGE CARDS (1 to 4)

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TEACHER NOTE: - Cut out these 4 cards. 16.4.80
 - See the Teachers' Guide for suggestions
 on how these cards could be used.

GA-02-1



CHALLENGE CARD - 1

THE CHALLENGE:

To design and build a straw bridge.

THE RULES:

To build your bridge, you may only use:

- 15 plastic drinking straws.
- pins, staples or sticky tape to join the straws together.
- scissors to cut the straws.

Your bridge must be able to span a gap of at least 50 cm.

THE AIM:

To see how strong you can make the bridge. (What weight will it support?)



CHALLENGE CARD - 2

THE CHALLENGE:

To design and build a windmill.

THE RULES:

You may use any material you like to make the windmill.

The windmill can be any size.

THE AIM:

Either - To build a windmill that will spin in very light winds.

Or - To build a windmill that will turn very fast.

Or - To build a most unusual windmill.



CHALLENGE CARD - 3

THE CHALLENGE:

To design and build an egg protector.

THE RULES:

The egg protector must be made from material chosen from this list (you need not use everything)

- 1 sheet of cardboard (maximum size = 30 cm x 50 cm).
- 2 sheets of pad paper.
- 1 small plastic bag.
- 2 yoghurt containers.
- 2 pencils.
- 1 rubber band.
- Pins, staples, sticky tape, string and glue.

The egg must be uncooked.

THE AIM:

To see if your invention will protect the egg when it is dropped from a 'great height'.



CHALLENGE CARD - 4

THE CHALLENGE:

To design and build a tower.

THE RULES:

To build the tower, you may only use:

- plastic containers (eg plastic bottles, yoghurt and icecream containers).
- pins, staples or sticky tape to join the containers together.

The finished tower must be able to stand up by itself.

THE AIM:

To see how tall you can make the tower.

CHALLENGE CARDS (5 to 8)



TEACHER NOTE: - Cut out these 4 cards.
- See the Teachers' Guide for suggestions on how these cards could be used.

GA-02-2



CHALLENGE CARD - 5

THE CHALLENGE:

To design and build a super dart.

THE RULES:

You can make the dart from any material you like (eg paper, balsa wood, polystyrene etc).

The dart cannot be powered by motors, rubber bands etc.

The dart must be launched by hand (no other help can be given at take off).

THE AIM:

Either - To see how far your dart will fly.

Or - To see how long your dart will stay in the air.



CHALLENGE CARD - 6

THE CHALLENGE:

To design and build a raft.

THE RULES:

The raft can be made only from plastic material (eg plastic bottles, polystyrene etc) and string or rope.

The raft must be able to carry at least 1 crew member.

THE AIM:

Either - To see if your raft will carry you across the school baths without you getting wet.

Or - To see how fast your raft will get across the school baths.

Or - To see how many people your raft can carry across the baths.



CHALLENGE CARD - 7

THE CHALLENGE:

To design and build a brick support.

THE RULES:

You must make a brick support using only:

- 5 full-size sheets of newspaper.
- sticky tape, pins or staples.

Your invention must be able to hold a brick at least 10 cm above the ground.

THE AIM:

Either - To just build a structure that will support a brick, 10 cm above the ground.

Or - See how many bricks your invention will carry at the same time.



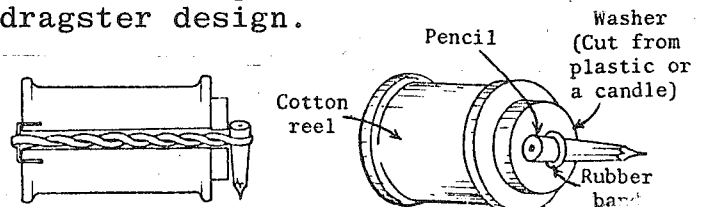
CHALLENGE CARD - 8

THE CHALLENGE:

To build a modified 'dragster'.

THE RULES:

These drawings show the basic dragster design.



Build a dragster. You must still use a cotton reel, but can modify your dragster in any other way.

THE AIM:

Either - To see how fast your dragster will go.

Or - To see how far your dragster will go.

Or - To try your dragster on some hill climbs.

CHALLENGE CARDS

GA-02-3



CUTLASS ACTIVITY SHEET
TEACHERS' GUIDE

AIM OF ACTIVITY SHEET

To stimulate an interest in science; to encourage students to think for themselves and use their imagination.

OBJECTIVES

The following general objectives apply to all the challenge cards.

After completing any challenge card, students should be able to:

- work with other students.
- suggest how the problem presented could be overcome.
- communicate their ideas to other students.
- build a model to test their proposals.
- modify their ideas (if necessary) as a result of their tests.

In addition, each challenge card would have its own specific objectives.

MATERIALS REQUIRED

- Refer to each challenge card.

EXTENSION WORK SUGGESTIONS

ADDITIONAL NOTES

- Print the Challenge Card sheets onto thin cardboard or glue the sheets onto cardboard before cutting out the cards.
- The Cutlass Challenge Cards are designed to be used in group work.
- There is no need to use all the cards. Select only those cards that you feel the students could cope with.
- If necessary, modify the rules.
- It may be advisable to set a time limit as one of the rules.
- You can give each group a different challenge, or have all groups working on the same card.
- There is an obvious challenge in mastering the problem set in each card. However, if several groups are working on the same card, they can end up by challenging each other to some form of contest. (Prizes or certificates could be awarded.)

RESOURCES