Science AT 1

We devised this activity to support revision for Year 6 around fair testing on the principle that collaborative revision is more than twice as likely to be remembered. It is also in itself a very useful assessment activity.The activity grew out of a course on science and access for bilingual pupils which we ran in Nottingham in 2003. Many thanks to Pete Dudgeon, Judith Evans, Ian Hampton,Alison McKinley, Margaret Pendleton and Stephanie Pye who all made creative contributions to this. This activity was last updated 28th February 2007.
The webaddress for this activity is:

http://www.collaborativelearning.org/scienceat1.pdf

COLLABORATIVE LEARNING PROJECT
Project Director: Stuart Scott
Supporting a cooperative network of teaching professionals throughout the European Union to develop and disseminate accessible teaching materials in all subject areas and for all ages.

17, Barford Street, Islington, London N1 0QB UK Phone: 0044 (0)20 7226 8885
Website: http://www.collaborativelearning.org

BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:
The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies across all phases and subjects. We hope they will inspire you to use similar strategies in other topics and curriculum areas. We run teacher workshops, swapshops and conferences throughout the European Union. The project publishes a catalogue of activities plus lists in selected subject areas, and a newsletter available by post or internet: “PAPERCLIP’.

*These activities were influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in mixed classes where children in need of language or learning support are integrated. They are well suited for the development of speaking and listening . They provide teachers opportunities for assessment of speaking and listening and other formative assessment.

*They support differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other’s views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts, discuss, paraphrase and move them about physically, they help to develop thinking skills.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in mother tongue and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally adaptable over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work effectively with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

Science AT 1

Each page contains cards for two comparative tests.

What are we finding out.
What equipment we are using.
What are we changing.
What are we measuring and how we are doing it.
What are we keeping the same (more than one card for this).
Possible conclusions for each experiment and some conclusions for neither.
We have also provided an optional frame for placing the cards which will need to be enlarged to A3.

Science AT One - Cards for testing toy cars on slopes

Does the weight of the car affect how far it travels?	Three cars of different weights.	How far the car travels using a metre stick.	Length of the slope.	Height of the slope.
Surface of the slope.	Amount of push.	Surface at the end of the slope.	Weight of car	The bigger the push the further the car goes.
Does the height of the slope affect how far the car travels?	Three slopes at different heights.	How far the car travels using a metre stick.	Surface of slope.	Amount of push.
Surface at end of slope.	Weight of car.	Length of slope.	Height of the slope.	The smoother the slope the further the car goes.
The heavier the car the further it goes.	The higher the slope the further the car goes.	The lighter the car the further it goes.	The higher the slope the shorter the distance the car goes.	The longer the slope the further the car goes.

Science AT One - Cards for testing germination and growth

Does the amount of light affect the rate of germination of seeds?	Containers, black plastic, clear plastic, seeds, compost and water.	Amount of light.	How many days the seeds take to germinate by observation and recording in a diary.	Kind of seed.
Type of compost.	Temperature.	Amount of water.	Amount of compost.	The more compost the more leaves the plant makes.
Does the amount of light affect the rate of growth in plants?	Containers, germinated seedlings, black plastic, clear plastic,and compost.	Amount of light.	How many leaves the seedlings make by observation and recording in a diary.	Amount of compost.
Type of compost.	Temperature.	Kind of plant.	Amount of water.	The cooler it is the faster the seed germinates
The more light the fewer days to germination.	The more light the more days to germination	The more light the more leaves the plant makes.	The less light the more leaves the plant makes.	The bigger the seed the faster it germinates.

Science AT One - Cards for testing cooling

Does the shape of a container affect the speed of cooling of a hot liquid?	Three containers with different heights and widths.	The temperature of the liquid using a thermometer and a record sheet.	The shape of the container,	The kind of liquid.
Starting temperature of the liquid.	Amount of liquid.	Location of the container.	How often the temperature is measured.	Size of container.
Does the material a container is made of affect the speed of cooling of a hot liquid?	Containers made from different materials.	The temperature of the liquid using a thermometer and a record sheet.	Material the container is made of.	Kind of liquid.
Shape of the container.	The amount of liquid.	Location of the container.	How often the temperature is measured.	Size of container.
The wider the container the quicker the liquid cools.	The thicker the material the slower the liquid cools.	The taller the container the quicker the liquid cools.	The thicker the material the quicker the liquid cools.	The more liquid in the container the slower it cools.

The question: what are you trying to find out in this experiment?

What equipment are you using in this experiment?

What are you measuring in this experiment?

What are you changing in this experiment?

What are you keeping the same in this experiment?

What are you keeping the same in this experiment?

What are you keeping the same in this experiment?

What are you keeping the same in this experiment?

What is a possible conclusion for this experiment.

Conclusions that are impossible or unlikely in this experiment.