



KEY STAGE 3 SCIENCE STARTERS AND PLENARIES

This booklet has some examples of activities to get started with starters and plenaries. Some lend themselves to use for the main

ARRIVAL ACTIVITIES

A These activities are intended for use as children arrive at the lesson, to get them interested and involved . . . and thinking!

STARTERS

S These may:

- provide an introduction to the content of the lesson
- check pupils' understanding/ misconceptions
- help to find out prior learning at the

See the plenaries

PLENARIES

P These may:

- Support assessment for learning
- Summarise learning
- Link to new learning
- Help pupils to understand **how** they learn (as well as **what** they learn)

POETRY IN MOTION **P**

This activity supports pupils' thinking; they need to condense their understanding into a five line poem of few words. Look for examples on the Science Year Cdroms:

Line 1 the idea (1 word) -given by teacher

Line 2 describe meaning of idea(2 words)

Line 3 describe what idea does (3 words)

Line 4 says what idea means to you (4 wds)

Line 5 says idea using another word



DISSOLVING

break apart

makes pieces smaller

solid mixes with liquid

PHYSICAL

For starters and plenaries, have poems with

CONCEPT **A** CARTOONS **P** **S**

Lots of ideas for use are given in Naylor and Keogh's Concept Cartoons book

MINDSTORM **S**

Ask pupils to generate words or phrases associated with a particular topic – it is the classification of the words (and explaining why) which often supports thinking.

THINKING SKILLS ACTIVITIES

This is a way of helping pupils to identify how they learned as well as what they learned (metacognition). This is about making thinking visible.

THINKING WORDS

Pupils select a card(s) with thinking words and explain how this helped them to do the work

P

CONSEQUENCES

Ask pupils to think of consequences, implications, parallel issues or exceptions

P

MAKING GENERALISATIONS

Pupils are asked to generalise/ link to the big idea from the learning experience. This helps in reflecting on learning and to transfer learning.

P

SEQUENCING CARDS

Pupils work in groups. Each group has a set of cards. Sentences or pictures on each card make up a sequence of events. Each pupil is responsible for their own piece of information. They can only exchange their own piece of information by speaking and only one person in the group can write

PAS

APPLYING NEW UNDERSTANDING

These activities can also be used to check understanding

PICTURE SEQUENCING

Put diagrams into the correct order to describe a process. Eg reproduction in flower-

P

GOLDEN RULES

Pupils devise golden rules/tips for others attempting the same

P

MAKE AN ARGUMENT

Ask pupils to prove or disprove a statement, either orally or in writing
Eg "You cannot go on holiday without a force - prove it"

P

FLOW CHARTS

Set up a flow chart with some boxes blank - fill in the miss-

PS

REVIEW DIAGRAMS

Ask children to draw a diagram or picture and annotate it to show what they know about a particular topic. Could use at the beginning or end of a topic to assess and identify misconceptions eg Draw what you think happens to your lunch inside your body

SIP

KEY WORD ACTIVITIES

Use to support knowledge, understanding and use of key words in a topic or lesson and to reinforce meanings of new words

WORDSEARCH

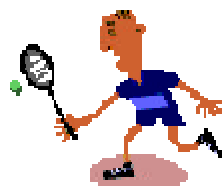
AIP

Put in more words than you have clues. Pupils score 1 point for correct answer, and take away 1 point for an answer for which there is

VERBAL TENNIS

SIA

Choose something learnt last time and pupils play tennis using associated words applying correct tennis scoring. A point is lost a player can't think of an associated word, uses an incorrect word or repeats one used already. Can be done in threes with an



WASHING LINE

SIP

Pupils need a washing line, pegs and letter cards for each group. Give definitions of key words – pupils assemble the words on the washing line and press the squeaker when finished. Can be played with competing groups.



CONTINUUM



SIP

Set up a continuum Use this to place opinions of the group eg ethics of cloning, sufficiency of evidence in an investigation.

Line of least resistance

Pupils position themselves along a line across the room. They may be asked to justify their place.

Chat split

Where a dichotomy of opinion exists in the class, split into groups of like mind and produce three bullet points to justify the opinion.

Mexican wave

Pupils line up at random points along the line. Then, by discussion with their neighbours only, they decide if they should swap places to the right or left.

Velcro

Use a velcro strip as the continuum and laminated reusable cards to write names to give position on the velcro.

Velcro Sequencing

Pupils are given cards with part of a sequence eg experimental procedure, menstrual cycle etc and have to put them in the correct

TRAFFIC LIGHTING

A self assessment system

Red - I know nothing about this

Amber - I know something about this

Green - I know this already

Here are some uses and variations. . .



TESTS

Ask pupils to mark the test with traffic light colours at the beginning of a topic

THUMBOMETER

Use thumb up, down or wavering to show understanding

CARDS/PADDLE

Pupils hold up traffic light coloured cards to show understanding

QUESTION GENERATOR

Have ideas about a subject on a set of cards for each group. Pupils put them into three piles: those they can answer, those they can partly answer and those they cannot answer.

Get into groups and try to help each other out with red and amber

Use information from traffic lights to pair up red and green children, while teacher helps amber

BINGO

Put 20 words of the board - children choose 9 words to record - and play bingo
Or use the bingo cards from the Scienceyear cdroms (look under *Funsize*)

DEFINITIONS

Match key words to definitions - could use cards or words and definitions on the

ANAGRAMS

Write anagrams of key word on the board for children to un-

CARD SORT

Provide pupils with cards with the key words on them. Pupils sort these into familiar and un-

CROSSWORDS

Use key words to make small cross-words with clues

SCIENCE TABOO

Play in threes:

Player 1 has to give a definition of the word on the card to player 2, without using the list of taboo words.

Player 3 has to spot if the taboo words are used

Energy

Power
Food
Joule
Sun
Change

EXAMPLE

IDEAS FOR QUIZZES

Use these as starters to check prior learning, or as plenaries to review progress. Use techniques to get all pupils thinking . . .

TRUE/FALSE **SP**

Provide pupils with true/false cards to respond to questions from the teacher or other pupils (could use traffic light cards for this)

WHO WANTS TO BE A MILLIONAIRE? **PS**

WRITE YOUR OWN QUESTION **SP**

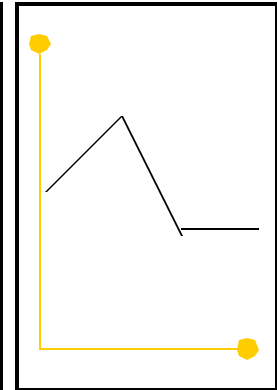
Ask pupils to write their own questions on small pieces of card with answers on the back. Pupils swap cards with each other or the teacher collects them and uses as a basis for a quiz at the end of the lesson, or the start of the

FOLLOW ME CARDS (LOOP GAMES) **SP**

You need a set of cards with a question on one side and the answer to another question on the back. Pupil reads the first question, the pupil with the corresponding answer reads it, then reads their question and so on. Examples on the Science Year Cdroms.

BLANK AXES **PS**

Provide laminated blank axes. Ask pupils to sketch the graph they would expect for a particular story Eg distance-time graphs. Supports interpretation of graphs (Sc1)



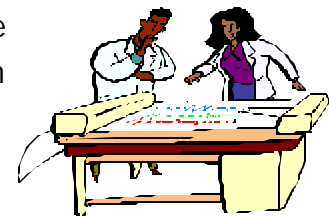
ARTICULATE **P**

Have a set of diagrams or pictures which relate to images from the current topic. Working in groups of three, one pupil has to describe the picture to a second without using the name. The third pupil acts as judge. Useful for synthesising knowledge.

TABLEAU TASK **S**

Pupils are shown a photograph and then given a set time to work out

- What lead up to the picture
- What is happening in the picture
- What will happen after the pictured event



HOT SEATING

A sequence of children (one at a time or in pairs) is brought to a focal point in the classroom and asked to respond to questions from the rest of the class

Draws out the products of groupwork to create whole class awareness
Also use to assess understanding of children hotseated



SAIP

QUESTIONS IN ROLE

Pupils prepare questions for an expert or an eye witness eg a scientist from history. Pair of pupils take questions from the class.

Gives an opportunity to draw out different perspectives on the same events – ideas and evidence



PILES

Pupils have cards containing sentences about the topic. Working alone, pupils sort these into three piles:

- Know
- Don't know
- Not sure

In pairs, discuss each other's know and don't know piles.

See traffic lights.

SA

PLAYING CARDS

Need two packs of playing cards. Teacher turns over the top one and pupil with that one and asks pupils with that card a question. Teacher keeps shuffling pack so that a pupil may be asked a question more than once.



SPOTLIGHT

A volunteer is asked five questions. The rest of the class mark down whether they agree or disagree with the answers so that the whole class is tested. Could use whiteboards or voting cards.



PS

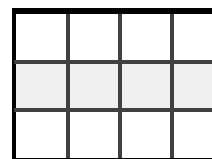
WHITEBOARDS

Pupils write answers on whiteboards and show – could be in pairs

PS

RESPONSE GRIDS

An alternative to whiteboards, help all pupils to respond by marking pre-prepared laminated response grids with answers eg



Response grid could contain

- names of planets
- selection of key words
- numbers related to the

topic

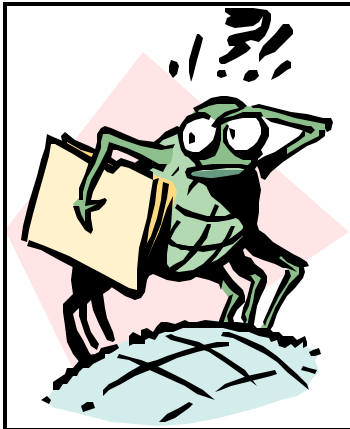
P

TRUE? CARD SORT

APS

Provide pupils with cards with statements written on them. Ask pupils to sort into piles of

Never true/ always true/ sometimes true.
Use for assessment for learning – perhaps



ANSWERS

P

Ask pupils to write a question, given the answer. Makes pupils demonstrate un-

CLASSIFYING

S

Could be done with cards – or just use a list of words.

Eg sort into:
solid/liquid/gas
dead/alive

Use to help pupils to synthesise knowledge and apply (eg is shaving foam S, L

POSTERS

P

Pupils write up their findings on posters, which are then viewed/ prioritised by others. Useful for synthesising knowledge and evaluating/reflecting on what has been learnt.

CONCEPT MAP

PS

Provide words to do with a topic, or ask pupils to generate their own. Join words together and link with a connecting phrase. This can be used throughout a topic to assess prior learning – then add to it throughout the topic. Pupils should be encouraged to feel able to change their minds.

SPIDER DIAGRAMS

P

Teacher or pupils use map to connect ideas and show how they interrelate. Helps pupils to see the big picture and to memorise

SHOW THE STORY

P

Groups of pupils are asked to act out a sequence of events with “voiceover” commentary eg the journey of food through the digestive system, the movement of the planets. Makes pupils demonstrate understand-

GIVING REASONS

Go round the class asking for a reason for a hypothetical situation

Eg my circuit doesn't work because . . .

My organism isn't alive because . . .

I think my material is a liquid because . . .