

PART C. RESOURCE BANK

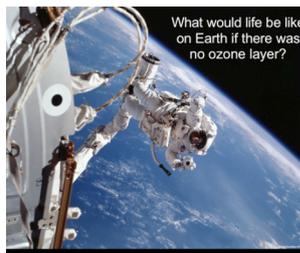
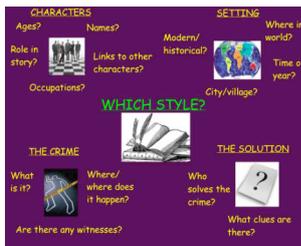
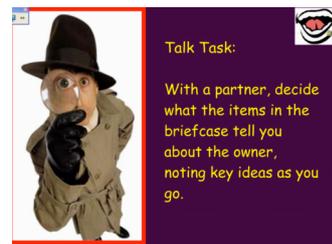
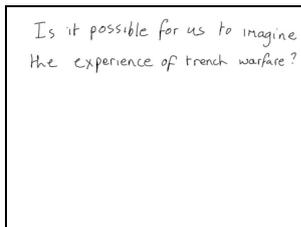
Dialogue and IWB activity descriptions with screenshots

All videos referred to can be found at <http://tinyurl.com/OUPIWB>.

Note that all templates referenced are provided in SMART Notebook format and some are duplicated in ActivInspire, where indicated. Reader Appendices are in only the format originally provided by the teacher.

C1. STARTING SIMPLE

Displaying an open-ended prompt and/or picture(s) to stimulate discussion in whole class or groups



You might want to start by simply using a text or picture stimulus to encourage and focus discussion. You might even start by asking a really general question such as "Why is that on the screen" or "What meaning could this image have for the lesson we are doing at the moment?"

Using images combined with text helps to enliven information, or illustrate/review key points and characters in a complex story. You can also flip quickly between screens to draw on a variety of evidence.

TIP: Images taken from the internet, for example via a Google search, are almost always subject to copyright and you cannot re-use them without permission. To filter your Google search to images licensed as re-useable ("Creative Commons"), just enter the search term at <http://tinyurl.com/googlecc1>.

See templates: Notebook ideas – Photo stimulus; ActivInspire ideas – Photo stimulus

See flipcharts (for Examples 2-4): Reader Appendices B2.1, B3.1, B3.3

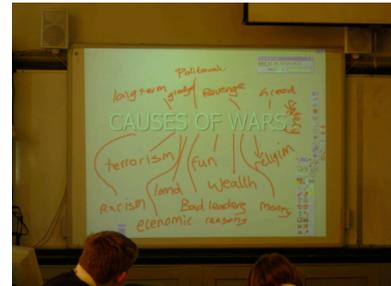
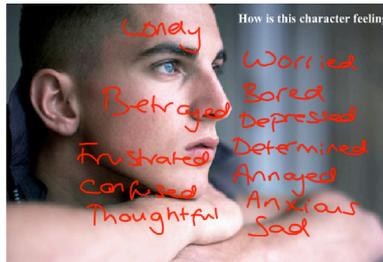
Class brainstorm

The teacher or students might exploit the interactivity of the board by using the pen to record ideas from the class in turn – underneath, over the top of or around edges of the stimulus prompt, discussing each one. Saving the results could be useful later on too.

worst rest play Is it possible for us to imagine the experience of trench warfare?

Living conditions	Yes, what it looked like
Medical conditions	Not what it felt like
Fighting conditions	

Doctor Pen video DVD discussion



Video 8

Using pens to underline / circle key ideas

This is a very straightforward use again; teacher or students might underline key phrases or circle key elements using the IWB stylus ('pen'), explaining their rationale each time. In this example a student identified key phrases in an historical text (an army doctor's 1914 diary) while the teacher managed the discussion.

If I ever get sent to the front with a regiment, I shall shed tears of joy. I do envy Chris going off so soon but I think this dog will have his day soon too.

We expect to be moved to the front at any moment. The men apparently will be in the trenches alternate 24 hours, changing with a fresh lot of men during the night. I am behind HQ, probably a dug out where I sit and wait for the wounded to be brought to me. I am told that doctors are not allowed in the trenches. I am told that the feeding at the front is splendid and there is a Daily Mail for every 10 men.

Our men have had a terrible experience of 24 hours in trenches, drenched through and in some places knee deep in mud and water. To see them come out, line up and march off is almost terrible. They don't look like strong young men. They are maddled to the eyes. Their coats are plastered with mud and weigh an awful lot with the water that has soaked in. Their backs are bent and they stagger and totter along with the weight of their packs. Their faces are white and haggard and their faces glare out from mud. They look like wounded, sick, wild things. Many, too many who are quite beat are told they must walk it. Then comes the nightmare of a march of 2 to 4 miles which they do in a trance.

Students might also circle areas of an image for investigation and then verbalise their thinking.

Sharing, discussing and comparing ideas in a whole class setting

Students can compare and contrast different perspectives by sharing them publicly using the IWB (writing or drawing) and talking them through. They might be primed for this by making notes or drawings of their ideas in exercise books or on mini- (wipe-clean) whiteboards, then share them with the class. In the first example a pair of boys has negotiated a video storyboard and recorded their ideas on the IWB. The teacher can help students understand through the dialogue that there are often multiple, valid views.

Soundtrack + J & D. = Unrel/Drawing + Echoes Throughout

Scene 1 = lines 1-6 / 1st Verse

Scene 2 = GAS! Fast Moving, lots of Cuts

Scene 1 1-3

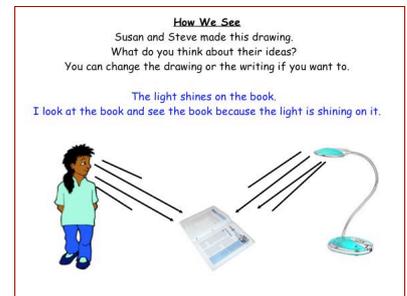
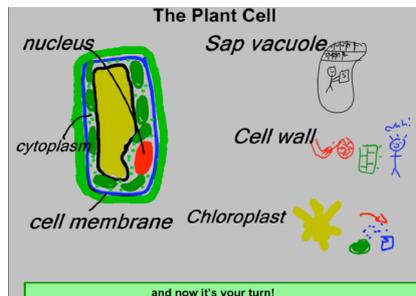
MUSIC - calm

People in pain

Soldiers bent double knock-kneed

coughing and cursing as they limp home

V. J → A



In the second example from science students generated their own personal representations illustrating how the plant cell wall protects and supports. Some of these were then drawn freehand onto the IWB or projected there using a flexible camera (form of visualiser) and publicly explained by students. In the picture shown, the cell wall protects a football player from a ball kicked towards him (the drawing adjacent to the words "Cell wall").

Video 9

In the final example, students debate contrasting perspectives during a plenary session or perhaps in pairs/small groups during a lesson.

See templates: Notebook ideas – Annotating a diagram (a & b); ActivInspire ideas – Annotating a diagram (a & b)

Using 'AFL tasks' in developing dialogue

KWL Grid -
Pupils discuss what they 'Know', 'Want to know' and return to the grid at the end of the topic/lesson and add what they 'Learned'

What I K _{now}	What I W _{ant to know}	What I L _{earned}

Many classroom tasks are explicitly designed to enable to children to articulate their understanding at specific points in their learning (Assessment for Learning); for example, 'concept cartoons' are often used in primary science classrooms to explore a range of ideas related to observable phenomena. Using an IWB for such collective tasks enables comments to be stored and returned to at different points in the teaching of a topic.

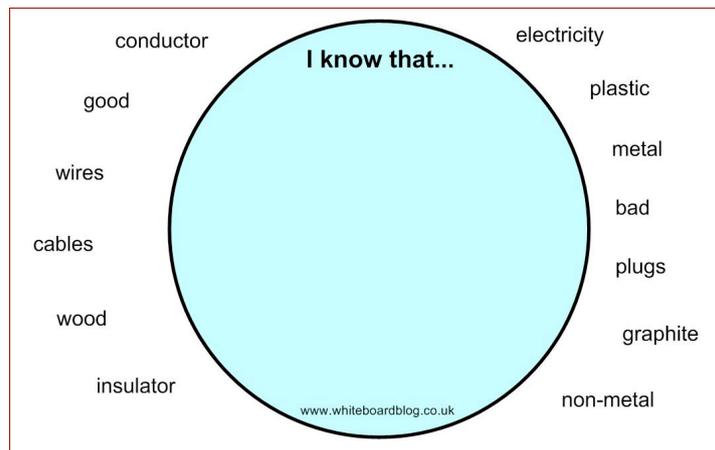
The template provided here is a KWL grid, where children are encouraged to express their initial *knowledge* about a topic and what they *want* to find out about it. There is then a space to review *learning* after a series of lessons.

See templates: Notebook ideas - KWL; ActivInspire ideas – KWL

Drag and Drop – The Plenary Circle

This is adapted from a simple idea by Danny Nicholson (<http://www.whiteboardblog.co.uk/2011/01/iwbs-8-ideas-to-keep-it-simple/>) for finding out or summarising what students have learnt at the end of a lesson. It consists simply of a large circle, with words arranged around the outside. All students get thinking time to come up with several sentences that start 'I know that ...' and then use one or two of the words in a sentence. Select a few students to come to the board and pull words in to the circle to share their sentences with the rest of the class.

To make it dialogic, make the words more provocative and/or ask students to link their sentence to what the previous person has said, or to respond to what the previous person has said before they contribute their own sentence.



Danny reports that this idea has been used in lessons from Year 1 to Year 13. The idea is the same; it's just the words and concepts that get more difficult.

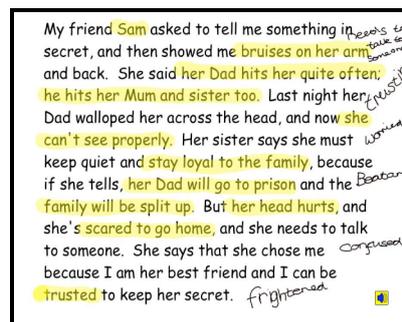
See templates: Notebook ideas – Plenary circle; Drag & drop

C2. MOVING ON

Highlighting and annotating texts or images Recording a teacher voiceover

In the first clip we see Diane's use of a recorded version of on-screen text, where the teacher first played an audio file of herself reading out a personal safety scenario for children to discuss. This use of recording brings a different voice to the classroom, engages students and allows the teacher to focus on the students' reactions rather than on the act of reading.

Using the colour highlighter or annotating with the IWB pen can be particularly effective in drawing attention to particular aspects of a text, picture or other digital resource and in developing and recording interpretations of it. The second clip starts with the key parts of the text ("suggestions about what people think is really important") having been identified by the students and highlighted. Here, the students suggest words and phrases that may be useful in their coming group discussions about secrets. One student annotated around the text to represent her peer's understandings of the characters' feelings, with the teacher managing the discussion. We can see that students were stimulated to go beyond the printed text, generating and explaining their own ideas and illustrating empathy (e.g. "beaten", "confused").



Videos 10 and 11

Video 12 (Overall sequence)

See template: Notebook ideas - Recording sound
See file: Screen & Sound Recording (ActivInspire).pdf

Focusing attention using the spotlight, magnifier or 'cover and reveal'

You could use the "blind" or "cover and reveal" feature to create suspense and then reveal parts of a text or prompt questions one by one to stimulate discussion.

You can also use the circular or rectangular spotlight feature to highlight selected parts of the screen.



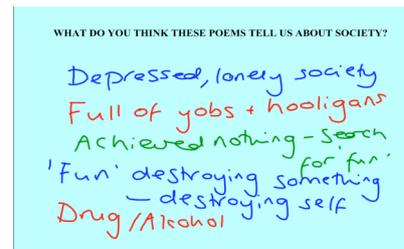
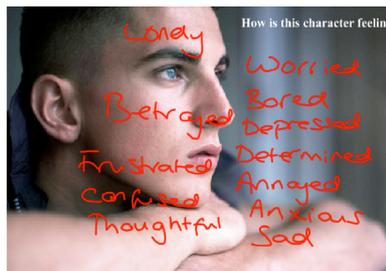
Gas! GAS! Quick, boys! - An ecstasy of fumbling
Fitting the clumsy helmets just in time,



See templates: Notebook ideas – Rub to reveal; ActivInspire ideas – Rub to reveal

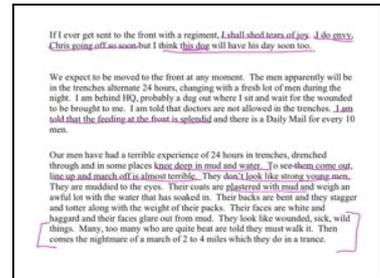
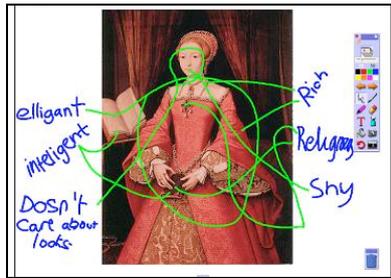
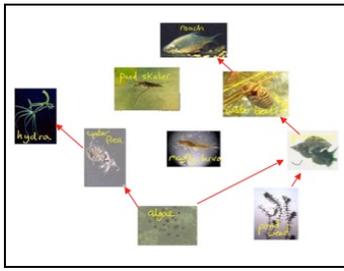
Understanding a text: taking it apart

You might use images related to a poem or other text to stimulate a brainstorm of students' own ideas and record these by annotating the text. In this way an original text can evolve into a richer resource. This example shows a sequence of IWB slides used during a lesson on the poem "Education for Leisure" by Carol Ann Duffy. The originally projected text has 'disappeared' in the course of developing a dialogue exploring a character's feelings, the significance of an evocative image (second slide) for the poem's persona, and the ways in which the image and poem, plus other poems studied, reflect today's society. Capturing learners' interpretations is made easier through directly manipulating objects on the IWB, highlighting and annotating during discussion.



Getting students to build on each other's contributions; constructing knowledge together as a class

Students can be asked to come up in turn and move objects around to create a collective object that builds on previous contributions, as in this food chain example. Students each added a picture and a link in turn. Importantly they were asked to explain their reasoning.



In the second example, students used the pen in turn to record perceived characteristics of the young Queen Elizabeth I around a projected digital photograph of this historical portrait, as shown. The work explored whether the “Golden Age” of Elizabeth was truly golden! A second group of students subsequently interpreted their peers’ thinking by drawing in links from their classmates’ labels (written without comment) to features of the same portrait – they had to interpret someone else’s thinking to do this. Finally, the teacher reflected with the class on the power of this collaborative **enquiry** and the scope of historical evidence offered by the paintings. Considering different perspectives and developing a more collective view of Elizabeth was powerful in altering their original individual conceptions although the teacher concluded that pictures only tell a partial story.

Video 3

In our third example of building in responsiveness to others’ ideas, one student used the IWB underlining tool to identify key phrases in a historical text (an army doctor’s 1914 diary), then the class were asked to explain his choices.

Video 5

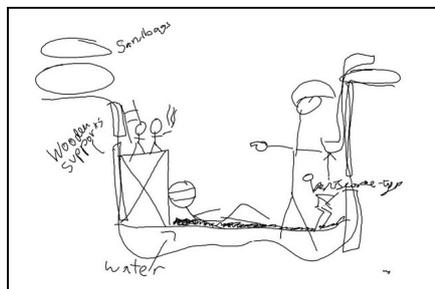
Finally, students might be presented with part of a picture and asked to add the missing elements in turn.

Note that in each of these examples, *getting students to respond to others’ ideas is built into the activity.*

Drawing objects on the IWB together

As in the previous examples, students are building on each other’s ideas here, and also on their knowledge and experiences from previous lessons. This time they are creating a joint picture by each adding an element in turn – this is a nonverbal kind of dialogue that creates a class product. Here the diagram depicted an imaginative range of elements perceived by students to be typically present in a trench, and it succinctly portrayed more than was said while drawing. It contained elements arising from the pair/class dialogue of their previous two lessons on trench warfare, “building on their informed speculation from some of the things that they had seen” (teacher).

Video 13

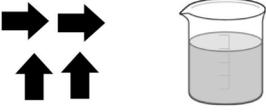


Drag and drop, argue and explain

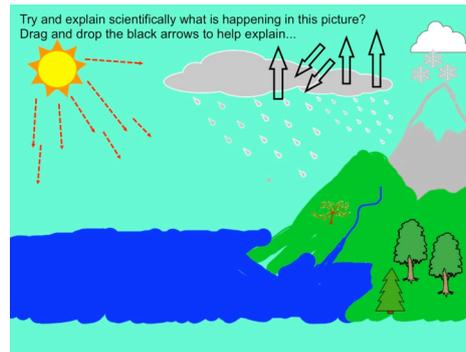
In these four examples from science, students drag and drop or sort the given images to show their understanding of a scientific process, and are then required to explain their reasoning.

Explanations -
Using the Gallery/Notebook page to support explanation, pupils drag arrows/key terms to support their explanation. Additional ideas can be freely scribed on the page.

Use the following to explain the process of 'Convection':



Key words to use:
Expands
Heated
Current
Dense



Sorting objects -
Pupils discuss how to correctly sort the images and add their own to a prepared table.
Example: Pupils explain which are light sources/reflectors of light.

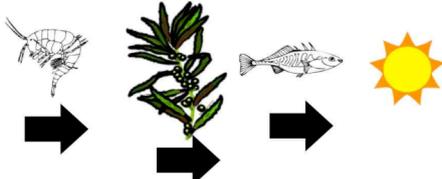
Let there be light!
Some objects give out light. These are light _____.

Which are light sources?
Sort the following pictures. Can you add your own examples?

Light Sources	Reflectors of Light
	
	
	

Drag and drop activity -
Use a series of images to stimulate discussion as pupils drag and drop images/shapes in place.

Example: Drag and drop the following to make a successful food chain.



Drag and drop, argue and explain can also be used to sort theories or statements of fact, as in the mathematics example below: students place the statements in the chosen column and explain why they are true, false or "iffy" (uncertain). (See also "Square of truth" or "magic box/window" activity below)

True	Iffy	False	Don't know
A- The product of two numbers is a whole number	F- When you square a number the answer is positive	K- The sum of two numbers is greater than their difference	O- Dividing by a number less than one gives a larger number
B - Adding zero to a number multiplies it by 10	G- dividing by two then by 10 is the same as the opposite	L- Perfect squares have only 3 factors	P- Multiplying two numbers gives an answer bigger than either
C- The square root of a number is smaller than the number itself	H- two fifths of a number is the same as dividing by 5 then multiplying by 2	M- product of three whole numbers is never same as sum	Q- sum of two odd numbers can sometimes be odd
D- The product of two odd numbers is odd	I- Prime numbers are odd	N- The product of a positive and a negative is negative	R- The cube of a number is bigger than square
E- Square numbers have an odd number of factors	J- The sum of the digits of a multiple of 3 is divisible by 3		

See templates: Notebook ideas – Sorting objects; Drag and drop; Explanations (a and b); True / false / iffy (a and b)

See templates: ActivInspire ideas – Sorting objects; Drag and drop

Students selecting their own words / pictures / scenarios from a given set and manipulating / discussing them in pairs/groups

In the first example each group of 4-5 selected a slightly different combination of images pertaining to personal safety issues, arranged them on the IWB as they desired and annotated them during discussion (generating advice "as a team working for Childline" and recording this on large sheets of paper). In the video clip one group talks through their ideas to the class, annotating the images; the teacher encourages other students to comment.

Video 15

One group outcome is shown. This can also be done with paper replicas at tables with one pair showing their work on the board afterwards, as in the second example from a science lesson (see Matched resources below).

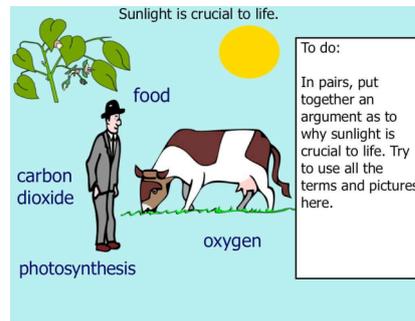


Image of “divided loyalties” mask is reproduced by kind permission of the originator Wendy Morrell.

See flipchart (for 1st example) in Reader Appendix B2.2

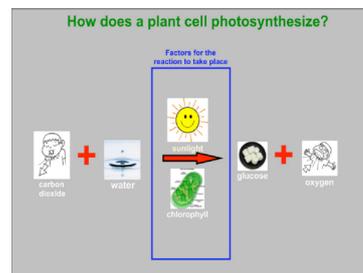
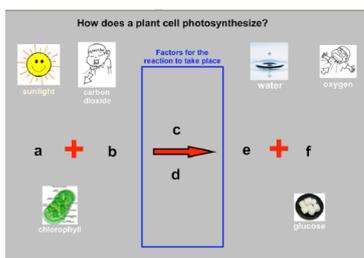
Matched resources: students arranging objects on the board and at their desks

In this related, example the teacher introduced the equation of photosynthesis using colour pictorial images of its components and an equation template on the IWB. The class were given paper mini-diagrams that replicated the IWB images (matched resources) and asked to cut up and order them, justifying their arrangements; this generated quite a lot of discussion and reportedly motivated students to 'want to know the answer'. The teacher circulated, talking to small groups of students, questioning and challenging their thinking. One student then came up to the IWB and moved the elements around to complete the equation. Students verified their own diagrams against this model before sticking the correct version in their books.

Video 14

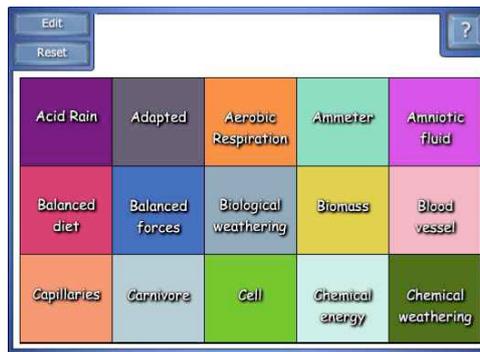
This clip illustrates how the teacher used the equation on the IWB as an object of reference for the whole class, plus the mini-diagrams to stimulate thinking and support stepwise knowledge building; he continued this process throughout the whole sequence of lessons.

(For further diagram uses, see Clips 1.3, 2.3, 4.2, 5.1 on the T-MEDIA multimedia science resource at <http://t-media.educ.cam.ac.uk>.)



Discussing definitions: using hide-and-reveal tiles

Students can discuss the meaning of terms displayed on each tile, then clicking reveals the definitions underneath. They can add to or amend the definitions.



See templates: **Notebook ideas – Tiles (a & b)**

Using a wider variety of digital media: embedding audio and video for “multimodal” interaction

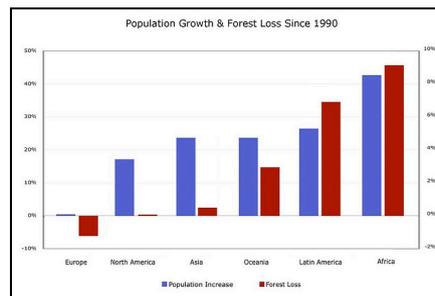
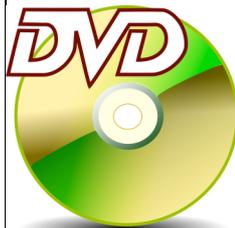
You can use the IWB to switch easily between media or to combine different kinds from the wide range available – embedding audio, video etc into flipcharts so they’re immediately accessible. This “multimodal” use can help to stimulate dialogue, build up understanding over time and maintain engagement.

For example you might show a video to illustrate or analyse themes or texts. Apart from text, audio and video, digital resources include drawings, diagrams, still photographs, dynamic multimedia presentations, animations, simulations and models of dynamic processes, interactive diagrams or maps, databases, graphs, tables, hyperlinked webpages, mathematical representations, musical performances, etc.

If I ever get sent to the front with a regiment, I shall shed tears of joy. I do envy them going off to sea, but I think this day will have his day soon too.

We expect to be moved to the front at any moment. The men apparently will be in the trenches alternate 24 hours, changing with a fresh lot of men during the night. I am behind HQ, probably a dug out where I sit and wait for the wounded to be brought to me. I am told that doctors are not allowed in the trenches. I am told that the feeding at the front is splendid and there is a Daily Mail for every 10 men.

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Combining lots of resources is illustrated in the lessons on trench warfare taught by Lloyd where a class explored the open-ended question: “Can we imagine the experience of trench warfare?” The teacher employed a doctor’s diary text, a poem, a YouTube video related to the poem, separate audio and video tracks of a single trench warfare film on DVD, a textbook trench diagram and wartime photographs; these conjured up different experiences and perspectives of life in the trenches.

Video 5 compilation

See template: **Notebook ideas – Recording sound, Inserting video**
 See files: **Screen & Sound Recording (ActivInspire).pdf [Templates folder]** and **Downloading, Inserting, and Embedding Video into ActivInspire** [<http://tinyurl.com/videoPromethean>]

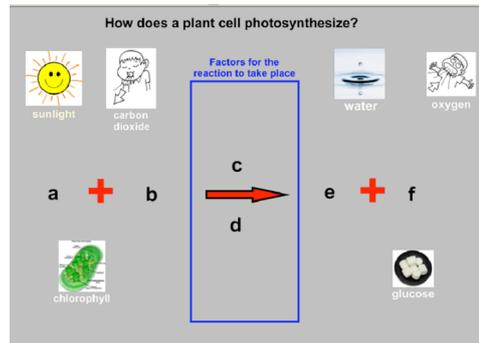
C3. Revisiting IWB resources in later lessons

Saving and re-using resources and slides is a very powerful way of building up and sustaining dialogue over time, including between lessons. This can be done in several ways.

1. Repeated display of resources created by teachers before a lesson sequence.

The progressive building up – and constant revisiting of earlier components – of the equation of photosynthesis over 6 lessons (along with practical investigation) helped students to explore and understand the role of each core element in the overall process. The teacher made constant reference back to earlier

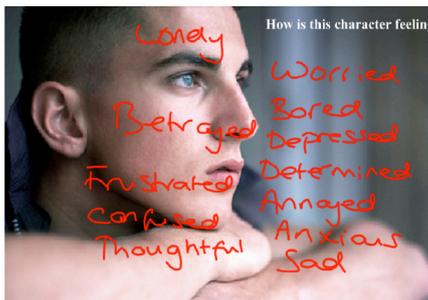
learning in order to help the students. Video illustrations of how the equation was built up over time and how the teacher managed and structured the activities surrounding it can be seen on the T-MEDIA multimedia science resource at <http://t-media.educ.cam.ac.uk> (Clips 1.3, second part of 2.3, first part of 4.2, 5.1).



2. Revisiting objects that were annotated or constructed jointly by a class.

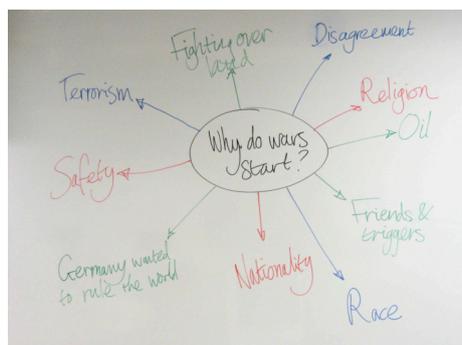
This includes displaying previously annotated objects as optional, unobtrusive supports for further activity such as students doing their own writing after studying a topic or piece of literature. It includes allowing students to request or access resources or class products by themselves as needed for support.

One English teacher revisited the two annotated slides below in the subsequent lesson, to bridge between lessons, pulling together ideas from the two poems studied, and refocusing students, allowing them constant reference to their earlier ideas and thoughts. These memory aids reminded learners of what they already knew and provided a springboard for further discussion of the themes depicted.



3. Revisiting objects created by other classes.

Other classes' creations might be revisited as a memory aid, either as a stimulus to provoke thinking and make explicit learners' own views in response, or to explore differences between perspectives across and within groups. For example, history teacher Lloyd displayed a spider diagram depicting a brainstorm from another class about "how wars start" for comparison and contrast with current conceptions.



Video 20

C4 Case Study: Caroline's Lesson Sequence illustrating some of the previous techniques and several further ones

A series of lessons focusing on elements of the crime-writing genre with middle school children aged 12-13, in preparation for children writing their own crime stories

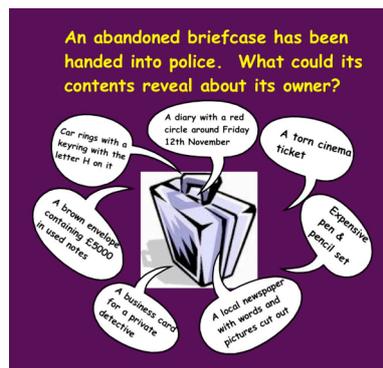
1). Using text and pictures to stimulate interest and initial dialogue

A starter activity to stimulate discussion in pairs or table groups. The children have to negotiate a response to each item and consider the links between them.

Note that a sound file – the 'Pink Panther' theme – is embedded in the picture. The slide was up at the start of the lesson and the music attracted the children's attention as they entered the room.

Clip illustrates teacher modelling responses and encouraging the children to consider alternatives.

Video 16



See flipchart: **Reader Appendix B3.1**

2). Matching terms and definitions

In a review of vocabulary from the previous lesson, explanations are moved by the children to match terms, confirming the accumulated 'common knowledge' from the previous lesson.

The clip illustrates a child getting the meaning of 'alibi' correct. It was important for this child, who misunderstood the meaning of alibi in the first lesson, to have the opportunity for dialogue with his group prior to completing this task.

Video 17

The second example of matching terms and definitions is from a science lesson. (See also the related activity 'Interactive multiple choice quiz' in 'C5 Further Ideas', below)

CRIME VOCABULARY	
premeditated	payment required to leave custody until trial date
alibi	the chance/time to commit a crime
motive	'set up' to look like the criminal
opportunity	a crime planned in advance
bail	a reason why you couldn't have committed the crime
framed	the reason for committing a crime

A	Cytoplasm	1	Sugar
B	Cell wall	2	Chemical reactions
C	Sap Vacuole	3	Information
D	Nucleus	4	Chloroplast
E	Chlorophyll	5	Cellulose

See templates: **Notebook ideas – Word definitions (a, b & c)**

3) "Square of truth" or "magic box/window" activity

This activity creates suspense and stimulates discussion by allowing teacher or learners to sort objects, words or text phrases according to their properties. For example, correct answers to a question, True/False, or prime numbers, metaphors or addictive substances will be correctly categorised when dropped into the box / other shape or a window is dragged over them. Typically students are asked in turn to predict whether – and to explain why – a set of given statements will be true / false or fit the given category, then to drag the statements over a central square or other opaque object (a badge in the first, crime writing example) to receive immediate physical feedback about correctness. Statements deemed false by the teacher are previously formatted to disappear behind the box using the object layering feature of the proprietary IWB software; those that are true stay visible. This kind of activity can either develop or test students' understanding. In the first example the aim was to consolidate children's understanding of the plot of a real-life crime, developing both crime vocabulary and ideas for their own crime story.

THE ALMOST PERFECT MURDER

Roger Harrington was framed for Donnah's murder.

Deann Schultz could have faced prosecution.

Winger's crime was pre-meditated.

Winger's bail was set at \$5 million.

Winger could have got away with it.

Donnah was dead by the time the paramedics arrived.

The police didn't make any mistakes when investigating the case.

Mark Winger didn't have an alibi.

Winger didn't have any opportunity to commit the crime.

The police know why Winger committed the crime.

The Square of Truth

- Alpha particles are made of two protons and two electrons
- Beta particles are negatively charged
- All three types of radiation cause ionisation
- Gamma rays are absorbed by paper
- Background radiation comes from space
- Radiation occurs spontaneously - we cannot predict when a single atom will emit radiation
- We can predict when a substance will stop being radioactive

The second example is from a science lesson. The third example shows the objects (statements) before and during dragging them onto the object (the moon in this case). In the final example, **'Guess the shape or 'Box of truth'**, students might discuss and predict what shape they think is behind the box based on whether the clues are shown to be true (when dragged are on top of the box) or false (when dragged behind the box). The green box can then be moved to reveal the mystery shape.

The moon of truth

The moon appears to change shape because it is sometimes in the shadow of the Earth

A lunar eclipse happens when the Earth stops the light from the sun reaching parts of the moon

The moon is a secondary source of light

We always see the same side of the moon, this means it doesn't rotate on its own axis

The moon of truth

The moon appears to change shape because of some situation

A lunar eclipse happens when the Earth stops the light from the sun reaching parts of the moon

The moon is a secondary source of light

The moon is the same as the Earth, it rotates on its own axis

The moon of truth

A lunar eclipse happens when the Earth stops the light from the sun reaching parts of the moon

The moon is a secondary source of light

Before, during and after manipulation

What shape is behind the box?

it has 5 sides

it has 3 sides

it has 4 sides

it has right angles

it has no straight sides

all sides are equal

2 sides are equal

See templates: Notebook ideas – Magic window intro [instructions]; Moon of truth; Box of truth (a & b); Tortoise of truth (a & b);

See templates: ActivInspire ideas – Magic window intro [instructions]; Box of truth (a & b); Tortoise of truth (a & b)

4). Focusing on evidence – identifying key parts of the screen

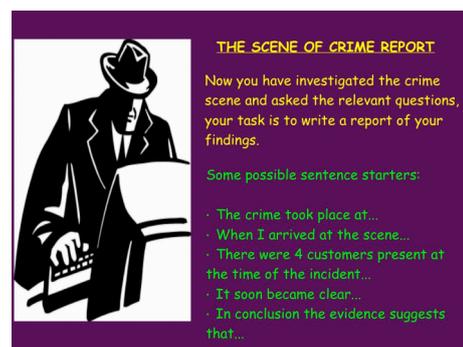
The slide below of a crime scene was shown at the end of the lesson. The children were asked to demonstrate their understanding of a crime scene investigation by coming to the board and circling anything in the scene that could help them solve the crime. The intention was that they express their individual understanding of these points. The clip illustrates a child selecting 'interesting' areas of the screen and being asked to explain his choice.

Video 18



5). Reviewing work and framing a written task

These two slides were part of a review and story planning section of the final lesson in the sequence. With reference to the first slide, the children were asked to consider individually how their previous work might impact on their own crime story writing. The second slide was used once the children had planned their stories. They were asked to work with a response partner to share their ideas; the response partner's job was to question the basis and structure of the plan to help improve it. The slide provided question prompts to help to maintain a focused dialogue.



See flipcharts: Reader Appendices B3.2, B3.3

C5. Case Study: Diane's Lesson Sequence illustrating some of the previous techniques and several further ones

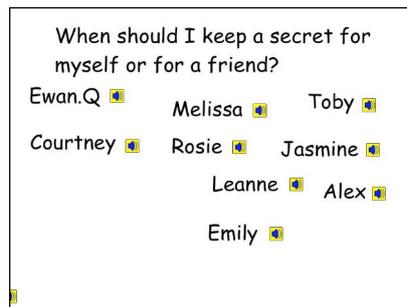
A series of Personal, Social, Health & Citizenship Education lessons on "staying safe" with primary school children aged 10-11

1). Using open-ended prompts and students' own recorded voices to stimulate discussion; use of tickertape/banner

(Use for Activity 3 of CPD Resource)

This clip is an introduction to the whole issue of keeping secrets. Diane uses a single image to stimulate some initial discussion, with a ticker-tape 'core' question dynamically streaming across the screen. She then uses sound files, recorded by children themselves before the lesson, to give the children 'another voice' through which they can express their ideas and which can then act as a stimulus for continuing dialogue. This is another way of sharing views orally. It is easiest to do using the IWB's own audio recording facility – even young primary children can operate this themselves – but can be done using a portable digital audio recorder too. Playing pre-recordings of students' opinions is an effective stimulus for class dialogue – it pre-packages the information for discussion, gives students more time to think about their responses than during a class discussion, opens up a space for students who might normally be shy to speak out in front of the class, and it encourages students to respond to each other. Audio files can be embedded in the flipchart so they can easily be clicked on to play in succession.

Video 4



See templates: **Notebook ideas – Scrolling banner (a, b & c); Recording sound**

See templates: **ActivInspire ideas – Scrolling banner (a, b & c); Recording sound**

See flipchart: **Reader Appendix B2.1**

2). Group recording and explanation

This clip sees Diane picking up on work carried out in the previous lesson, where one group were asked to work at the IWB, annotating images with their initial thoughts about keeping secrets. One child tells the rest of the class what their responses were and Diane picks up on some key issues that are to be used in subsequent discussion. Thus the group dialogue from the previous lesson is continued over time.

Video 19

See the longer follow-up clip “*Choosing, annotating and discussing images related to personal safety on the interactive whiteboard*” from later in the lesson (**Video 15**).



Image of “divided loyalties” mask is reproduced by kind permission of the originator Wendy Morrell.

See templates: Notebook ideas – Cartoon strip (a & b); Explanation (a & b)

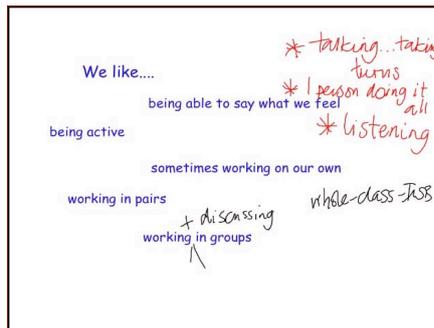
See templates: ActivInspire ideas – Cartoon strip (a & b); Explanation (a & b)

See flipchart: Reader Appendix 2.1

3). Negotiating classroom rules and procedures using the interactive whiteboard

Whilst this clip illustrates a simple use of the IWB by a child in the class, its main purpose is to illustrate the idea that in order for children to talk productively they need to know how. Here the teacher introduces some talk rules for the students to trial and provides an opportunity for them to discuss which they see as important. The aim is to support classroom dialogue in the activities that follow.

Video 1



See flipchart: Reader Appendix 2.2

4). Working using class talk rules

The IWB slide presents a scenario for students to discuss in groups. There are some prompt questions that follow on the slide, which were the basis of some whole class discussion before the group work. The clip shows one group using talk rules to explore the scenario.

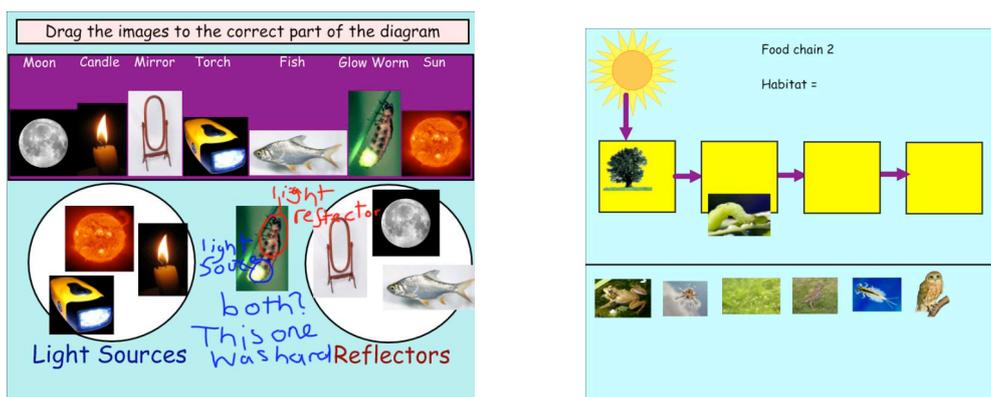
Video 2



To supplement this, or similar, activities a dice roll can be used to select the talk group that will address a particular question or issue.

See templates: Notebook ideas – Dice roll (a & b)

C6 Students working semi-autonomously in groups at the IWB



Two video clips illustrate primary school students in groups using the IWB semi-autonomously; these are **Videos 6 and 7**.

The IWB environments that feature in these lessons have both been set up by the teacher to have some elements that are fixed and some that can be moved by the students. Thus, the students' choices with respect to re-configuring the IWB screen are restricted, focusing them on the specific intended learning for the task.

Video 6 shows three students from a Year 5 class (aged 9-10) engaged in dialogue about where to place a glow-worm in a categorisation of objects as light sources or reflectors. In this example, the page sorter is open and provides easily accessible links to other tasks in the same topic. In this way the whole IWB file for the lesson can act as an assistive memory device for the pupils, should they need it.

Video 7 shows the Year 4 students (aged 8-9) discussing the selection of pictures of living things prior to placing them into a food chain that has been constructed on the IWB. The images have been hyperlinked by the teacher to descriptions of each organism, with the intention that the students can access information relevant to their task at appropriate times.

The key issues in setting up such IWB environments for students are:

- i) How many elements should be fixed and how many should be open to movement, hyperlinking or adaptation by the students?

This will depend not only on the age and experience of the students, but also on the nature of and complexity of the task.

- ii) How open to interpretation are the elements that are adaptable by the students, and does this matter?

For example, in Video 6 the students choose to place the glow worm in the centre of the two groups and, though this wasn't the teacher's intention, it makes for a much richer discussion.

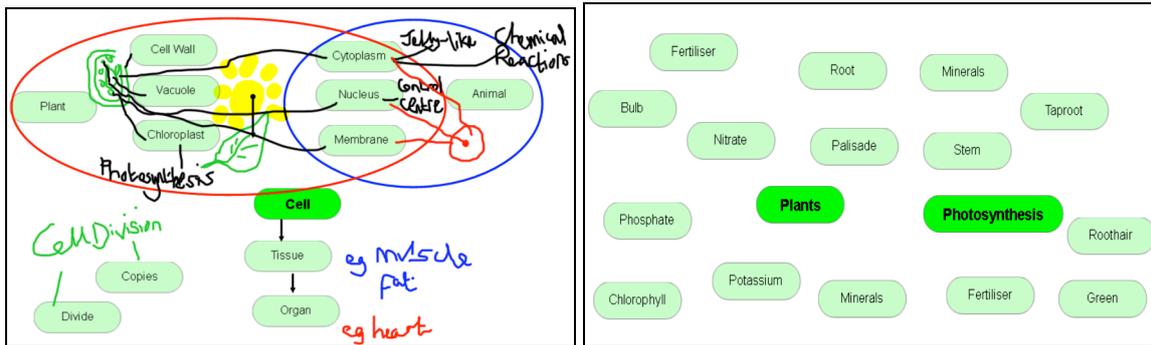
In **Video 7** the students did not use the hyperlinked information as intended by the teacher; instead, they opened all the links at the start of the lesson, read through the information and then proceeded (hence their irritation when touching an object brought up a hyperlink).

C7 Further ideas

Model mapping / mind mapping

Students use key terms and drag and drop words/draw arrows/add text to make connections and explain key ideas about a topic. Results can be saved and added to throughout a lesson/topic of work. Learners could

make a mind map at their desks before or during the class activity, or they could do the activity at the beginning and end of a lesson or lesson sequence to illustrate to themselves and the teacher what they have learned. This is especially useful for children with literacy difficulties.



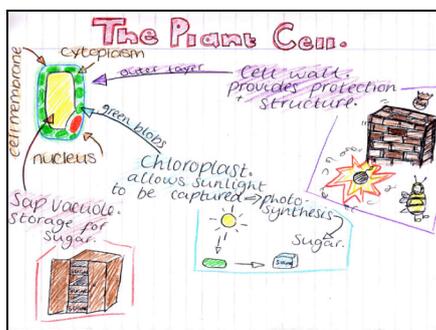
See templates: Notebook ideas – mind map (a & b); ActivInspire ideas – mind map (a & b)

Generating and testing provisional ideas

Teachers can support trialling of ideas and create joint responsibility for learning through encouraging students to make *conjectures*, nonverbally using the IWB as well as verbally. The teacher supports student understanding by providing or requesting further explanation or clarification. Other students can join in, especially when someone at the board seems uncertain.

Examples we've already seen in this Resource Bank include (1) playback of children's own audio recordings of opinions about personal safety as stimuli for class discussion; (2) students in turn contributing links to a food chain; and (3) students testing out conjectures using a "magic box" or "square of truth".

Use of a visualiser with the IWB



The visualiser (or document camera) can be used to display and compare students' work or experimental results, or to project an image as a stimulus for a task. See **Video 9** of use in a science lesson and play it from 41.05 to the end. In this example, low attaining students aged 14-15 learning about photosynthesis generated their own personal representations illustrating how the plant cell wall protects and supports. Some of these were then drawn freehand onto the IWB or projected there from their books using a flexible camera (iCam or form of visualiser) and publicly explained by students.

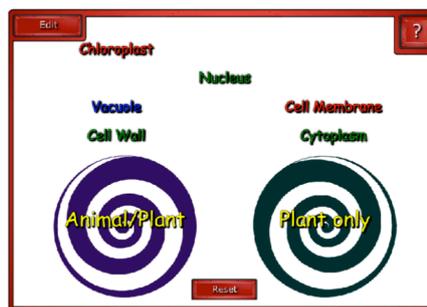
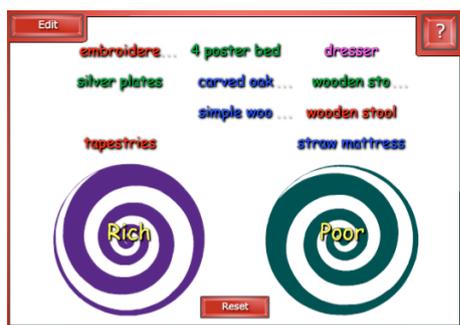
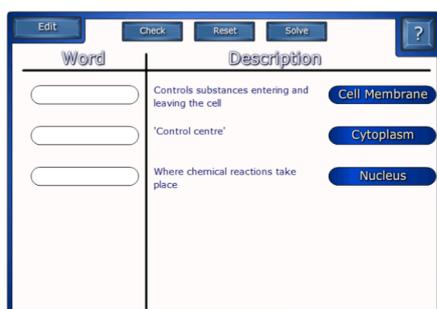
Further examples of visualiser use by teachers in other contexts are described in these videoed presentations:

- https://svl.ioe.ac.uk:554/basevideo/StevenandJulie_med.rm;
- https://svl.ioe.ac.uk:554/basevideo/DougalMcCormick_med.rm;
- [https://svl.ioe.ac.uk:554/basevideo/DianeMavers_med.rm.](https://svl.ioe.ac.uk:554/basevideo/DianeMavers_med.rm;)

You may need to download Real Player to view them. They mostly depict primary school uses but they will give you an idea of the tool's versatility. They include rolling a dice for a class to see, showing equipment (ruler/protractor/syringe), scrutinising the structure of bread going mouldy, projecting children's work and a photostory. You can also freeze an image, then remove the object from the visualiser and manipulate it, and compare it with the original.

Interactive multiple choice quiz ("Who wants to be a millionaire?" style) or drag-and-drop matching activity / vortex sorting activity

This is closely related to the activity '*Matching terms and definitions*' in Caroline's lesson sequence, where students drag explanations/statements to match key terms. You may do these kinds of activities to review the meanings of terms or students' understanding of a topic area or process (soliciting their own everyday knowledge or what they learned in a previous lesson).



In the first example, students might discuss and match up the description to the key word. Similarly, in the second example, students demonstrate whether they know the names and uses of rooms in the house of a rich Tudor. Following discussion, definitions can then be added to/amended or deleted and re-worded.

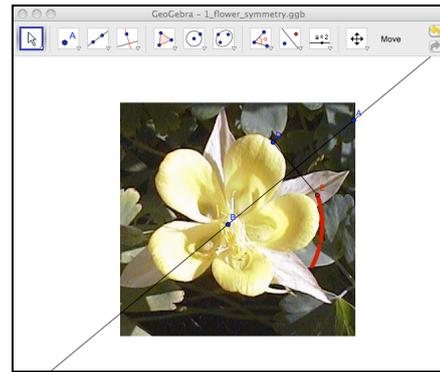
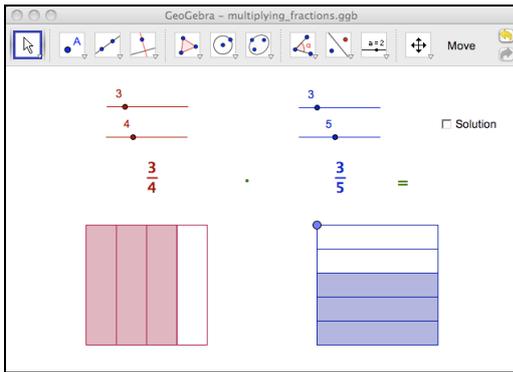
In the third example, students indicate what furniture the rich and poor Tudors might have had. In the final example, students might discuss whether the features of a cell belong to a plant cell only or plant and animal cells. In both of these vortex sorts, they then drag and drop the terms into the correct position. If they are incorrect the vortex 'spits out' the key term.

To promote dialogue, students can be asked to justify their responses; they get feedback both from the IWB and their peers / teacher.

See templates: Notebook ideas – Blockbusters game; Vortex sort (a, b, c); Word definitions (a, b, c)

Using subject-specific software interactively: GeoGebra

As well as creating resources using the IWB's own software, you may want to use other software packages containing activities designed for the IWB or lending themselves to manipulation on a board. For example, the powerful open source mathematics software environment GeoGebra (www.geogebra.org) allows learners to directly explore a range of concepts and relationships through manipulating objects on the screen. It is a geometry package providing for both graphical and algebraic input. Some examples of IWB activities (GeoGebra format files are provided) are as follows.



See Geogebra file: multiplying_fractions.ggb

You might ask questions like:

Change the fractions with the sliders and see what happens?

Move the blue point.

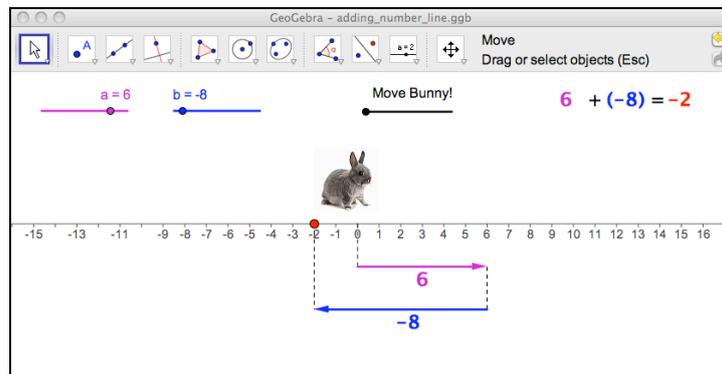
How many pink pieces does the square have? How you can get this number from the fractions?

How many purple pieces does the square have? How you can get this number from the fractions?

See Geogebra file: flower_symmetry.ggb

Is this flower symmetrical? Let's check by moving point D.

How many reflection lines does it have? Move points A and B. You can refresh the view if necessary (View: Refresh View or Ctrl+F).



See Geogebra file: adding_number_line.ggb

Move Bunny! Change the values of a and b and move Bunny again!

In which case does Bunny make the turn?

When does Bunny look right/left?

VIDEO clip locations

- 1). <http://sms.cam.ac.uk/media/1098087>
- 2). <http://sms.cam.ac.uk/media/1098208>
- 3). <http://sms.cam.ac.uk/media/1085166>
- 4). <http://sms.cam.ac.uk/media/1097541>
- 5). <http://sms.cam.ac.uk/media/1085205>
- 6). <http://sms.cam.ac.uk/media/1388061>
- 7). <http://sms.cam.ac.uk/media/1388048>
- 8). <http://sms.cam.ac.uk/media/1097431>
- 9). <http://sms.cam.ac.uk/media/1090403>
- 10). <http://sms.cam.ac.uk/media/1097935>
- 11). <http://sms.cam.ac.uk/media/1097978>
- 12). <http://sms.cam.ac.uk/media/1098026>
- 13). <http://sms.cam.ac.uk/media/1095570>
- 14). <http://sms.cam.ac.uk/media/1090412>
- 15). <http://sms.cam.ac.uk/media/1085308>
- 16). <http://sms.cam.ac.uk/media/1098329>
- 17). <http://sms.cam.ac.uk/media/1098252>
- 18). <http://sms.cam.ac.uk/media/1098379>
- 19). <http://sms.cam.ac.uk/media/1097583>
- 20). <http://sms.cam.ac.uk/media/1497832>
- 21). <http://sms.cam.ac.uk/media/1498504>

The whole collection is found at <http://sms.cam.ac.uk/collection/1085164>.