

Eyes closed for learning

Mick Statham explains how the simple, effective method of 'eyes closed' learning enhances how children's scientific ideas form, change and strengthen

A constructivist philosophy underpinning science teaching and learning for over 100 years in UK classrooms places 'conceptual change' at the heart of classroom work in which children's scientific ideas form, strengthen and change. In recent years

I have worked with teachers and trainee teachers to arrive at ways of providing a better experience for children of this 'conceptual change'. Children's ideas often form during practical activity but the link between the activity and conceptual understanding can be lost. Driver states that:

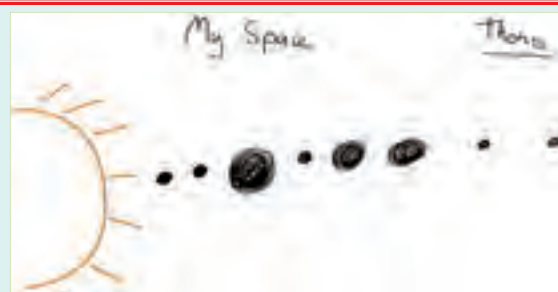
Pupils who have made and controlled a working circuit see that as success in itself and the challenge for the teacher is to maintain their sense of success

whilst interesting them in questions which probe the working of the circuit. This is a situation where pupils need to develop an analogy or model which will help them think about the circuit. (Driver, et al., 1994: 57)

With an 'eyes closed' segment of the lesson, this key transition to abstract thinking is more readily achieved. A recently published study by Surrey University (Vredeveltdt, Baddeley and Hitch, 2014) concluded that there is evidence to suggest that 'closing your eyes helps you remember sights and sounds more accurately'. So how does this transfer to the context of the classroom and how does it fit into the work of teachers as a whole?

Progression revisited

Research undertaken by Leeds University (Driver et al., 1994) concluded that progression in scientific thinking occurs as a conceptual journey from the concrete (the real experience of the child in the classroom) to the abstract (only existing as a mental concept). Children are often unaware of their mental concepts as they tend to be unconscious. 'Eyes closed' focuses attention on the imaginative 'building blocks' of which the visual, auditory and kinaesthetic submodalities (Statham, 2014a,b) are the most useful (Box 1). (Submodalities are the small distinctions in how sensory experiences or models are coded internally. For



Box 1 Progression example The solar system (Driver et al., 1994)

Children's ideas of 'their' solar system help them make sense of the night sky (Figure 1).

Figure 1 How Thomas makes sense of the night sky

Progression pathway: from	Progression pathway: to	Concrete phase	Abstract phase	Evidence for learning
Many children think the Earth is at the centre of the solar system	Planets, including the Earth orbit the Sun	Using materials such as balls to build a model universe	Closing eyes and imagining what the solar system looks like	Formative diagrams of their idea of the solar system

Key words: ■ Abstract concepts ■ Learning styles

Box 2 Opportunities for using the 'eyes closed' technique in a lesson (with links to exemplification in Boxes 3–6)

Lesson phase	Purpose	Linking phases together	'Eyes closed' opportunity
Impact and presence	Be listened to consistently	Settle class	
Engage and interest	Focus attention inwardly	Readiness for learning	'Eyes closed' for stories (Statham, 2014a)
Overcome challenge	Keep lesson on track	Readiness for learning	
Communicate subject knowledge	Build ideas meaningfully	Knowledge construction	'Eyes closed' to experience full sensory and emotional meaning of the subject input (Box 3)
Activity to concept	Form ideas from practical experience	Knowledge construction	
Lead progression 1	Help children form ideas	Knowledge construction	'Eyes closed' for coaching, modelling and instructing (Box 4)
Lead progression 2	Help children strengthen and change ideas	Detailed knowledge construction, conceptual change	'Eyes closed' to embed learning using 'contrast questions' (Statham, 2013)
Concept to activity	Improve conceptual grasp	Knowledge construction	'Close your eyes and visualise' works as a good instruction to build ideas (Box 5)
Reflective teaching and learning	Embed new thinking and create new memories	Pull lesson together (which can be used as an introduction in the next lesson to create a link)	'Close your eyes to reflect and review' (Box 6)

instance, a mental image of a plant can be bright or dark.)

'Eyes closed' and voice work

To make this work, teachers need to insist on every child closing their eyes. This focuses attention inwardly, on breathing slowing and reducing muscle tension so children look more relaxed. Even one child with eyes open disturbs others' concentration. As with most techniques, it becomes easier with practice.

This highlights the significance of paying attention to both the words that instruct, or guide, and the teacher's voice tone. Although children often think they are paying attention to the content of the words they hear, they are also highly responsive to the tone of voice used, so it is worth working on developing a

Box 3 'Eyes closed' for stories: Introducing food chains

This is easiest to learn by demonstrating it on one child at a time to the rest of the class. Read the story out loud.

Figure 2 Fliss's drawing of a food chain after an 'eyes closed' story



The savannah story

Close your eyes. Notice you are feeling relaxed. You are about to go on a journey to a place you have never seen before. It will seem very real to you, but you can relax because it will only take place in your imagination.

There is a car outside. You haven't seen this before but as you climb in the driver says he is taking you to the airport. As you arrive there, you can see all the planes on the tarmac. Climbing up the steps into one you sit back in your seat and do your strap up. The engines roar, you feel the kickback as the plane takes off and soon you are up in the air. A few hours later, and you are looking down through the window. The landscape looks brown and sunburnt. You notice it looks very different from home. Landing at the airport, the door of the plane opens and you feel a warm blast of air. Looking around you there are dry fields as far as the eye can stretch. In the distance, there is some woodland and a car has arrived to take you there. It feels cool under the trees, and as you get out of the car you look

around at the animals and plants.

What can you see? [Be prepared for original and unique contributions; tigers, elephants and bears often feature in this.]

What does it feel like to be there? [Often a little scary, because of the wild animals!]

Are the animals dangerous? What are they eating? [Pick out examples here from the pupils' own vivid accounts of food chains.] *What you can see is called a food chain.* [You can write these on the board as a record, but obviously the children can't see them as yet!]

You are going to begin your journey back. As you return in the car back to the airport, you know what a food chain looks like now. And this is your understanding and your idea.

As you return in the plane you land back at the airport again and return back to school in the car.

Now, as I count backwards – 3, 2, 1 – open your eyes.

Now explain to me what a food chain is and give me an example.

Box 4 Coaching, modelling and instructing

Coaching: Think of children's ideas as being pictures in their heads. Strengthen these by asking them questions about their picture. For example, a child may have a picture of particles forming ice so you could ask them what the picture looks like, whether there is any sound with it (you could well be surprised!) and what it feels like.

Modelling: Give a running commentary on how you use your imagination to construct your own ideas. Challenging – and pupils always love knowing how teachers learn!

Instructing: Tell your children to turn key words into pictures.

pleasant conversational style to add to the 'relaxing' nature of the technique.

The Surrey University research (Vredeveltdt *et al.*, 2014) also reported that good rapport with the interviewer

Box 6 Pull the lesson together

Quick reflect: Close your eyes, see what you saw, hear what you heard, feel what you felt.

Enhanced reflect: Close your eyes, see what you saw, hear what you heard, feel what you felt. Notice all the detail. Make the colours bright and the pictures focused. Make the sound clear and any feelings you have about your picture strong.

Now, as I count down from 3 to 1 you can open your eyes.

How many of you found that useful? [Most children find this works.]

Record what you have done this lesson and what you have learnt that is new on A3 paper.

makes people more at ease with closing their eyes. This is important in using this helpful technique as a key part of knowledge construction – and something that as primary teachers we are already good at!

There are many points in a lesson where getting children to close their eyes works. Using a progression-focused model, we have identified where opportunities lie (Box 2). This model highlights lesson phases that underpin much classroom activity. Within each phase there are

opportunities for quiet, reflective 'eyes closed' work with the children.

Does 'eyes closed' work for your pupils?

Ask them 'contrast type' questions (Statham, 2013):

When you close your eyes does that make your learning stronger or weaker? Real or less real? Useful or not?

There are lots of 'contrast questions' to build. Asking them helps embed habits in children and builds your understanding of 'what works'. 'Eyes closed' is immensely practical, it requires no special resources and the benefits to both learning and the atmosphere in the classroom are instant. It is both very memorable and a lot of fun! Close your eyes – what can you remember?

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Mick Statham is a freelance consultant with 36 years' experience in teaching, training, mentoring and coaching. He provides online training and workshops for NQTs, RQTs and mentor teachers in the methods described in his articles. Email: mj.statham@ntlworld.com

Box 5 'Close your eyes and visualise'

A script to rapidly build an idea (scientific ideas highlighted)

Imagine now you are leaving the classroom and suddenly find yourself at home, in your house. Notice now you are in a room next to your garden or some open space nearby. As you look at this, you suddenly notice you are in the garden or the green space. It may be a warm sunny day or a cold winter evening, you choose. Now, you notice a big plant with bright green leaves and as you walk over to it, you find in your pocket a pair of 'magic glasses'. Putting these on notice you can now see inside the plant. Inside, you can see a big tube running all the way up the inside and you just know that water passes up this.



Now, the clouds have darkened and it has begun to rain. As you feel the rainwater on your skin, you see it trickles down into the soil and as you look through your magic glasses, you can see the water **splitting into hundreds of tiny particles** and **passing into the root**. From here, you see the **particles moving up the tube inside the plant**. Notice now the weather has changed and you can feel the warm sunshine. The sunshine warms the particles. Notice how the particles now **begin to move** and the more they move the more they leave the plant and move into the air. This is called **evaporation**. Notice how **the particles all move into the air** as they begin to cycle around.



Figure 3 Lucy's picture of transpiration after visualising the story