

Teaching Science to Children - Ideas for Teachers

Key Stage 2

As their scientific education and literacy continues, the basics from your students' early primary education will give a solid grounding to further develop their own critical thinking.

Tip #1 – Let Them Take Ownership

Rather than a teacher-led investigation, give children the time and freedom to come up with their own questions and predictions that will dictate the direction they take. Letting them take ownership and harness their natural curiosity will help develop their intrinsic motivation.

Using the phrase 'What would happen if...' in conversations about science investigations will soon rub off on your students and have them keen to answer questions you hadn't thought of. Your role here is then to help facilitate those experiments – asking questions that will help them think critically about what investigative questions are more suitable and which have their limitations

Tip #2 – Give Them Questioning

Those students that are looking for a right answer and the confidence it brings can find science a difficult subject to engage with. Creating a learning environment that is supportive and encouraging is what every teacher is striving for, but it's particularly important for children to learn that wrong answers are okay. A classroom where children aren't afraid of wrong answers and understand that they can even be useful is incredibly effective for helping to engage more tentative students.

As children like to rank and compare themselves it can be tricky to get the whole class not to dismiss others' wrong answers. Taking away the ownership from individual students and working as a whole class can work well for initial investigations. Before an activity children could discuss their predictions for an investigative question. Note down a range of answers and display them on the board, which can be used for a follow-up activity using the question 'What have **we** learnt?'

Tip #3 – A Fun Question First

According to a [2010 Ofsted report](#), creative learning can have a very positive effect on learning and achievement when it's centred around the core

theme of the National Curriculum's content and skills. Although all children will like to play games, it is also important for their motivation that they see the purpose of an activity.

Fun and interactive activities, with a little careful planning, don't have to be side activities but instead the main way to learn if they raise questions, demonstrate scientific principles or build up rigorous investigative practices. Introducing and setting the fun activity first will spark their interest and make them motivated to join in with the discussion of how to set up the experiment.

Tip #4 – Build It Up

Don't try to run before anyone in your class can walk (as it were). Introducing the vocab and structure of investigations one step at a time will help you build up to variables, measurements and conclusions. Revising concepts with each new guided experiment will help children to slowly notice the formal structure of a rigorous investigation, rather than being confronted by a set of off-putting rules.

As classes progress, it is really motivating and satisfying for students to be able to form whole investigations from start to finish. Giving students increasingly difficult challenges and questions that support them step by step, building on previous lessons, will help them see how they are progressing.

Tip #5 – Ask Them To Explain

Presenting to others is an effective way for both you and the students themselves to see what they understand about a subject and where their gaps are in the vocabulary to explain themselves or their underlying knowledge.

Peer to peer discussion is useful to help students learn from each other and to encourage scientific talk that isn't led by the teacher, whilst **pairing students up with younger children** can help them build the confidence that is needed for mixed-gender groups or whole class discussions.

Top Tip for Parents

The language of the science classroom can be one of the most difficult hurdles for some children and it's an area that benefits from being practiced at home. Ask your children what experiments and investigations they have been doing and encourage them to describe it. Use scientific language in your questions, like 'What did you predict?' and 'What did you measure?'