

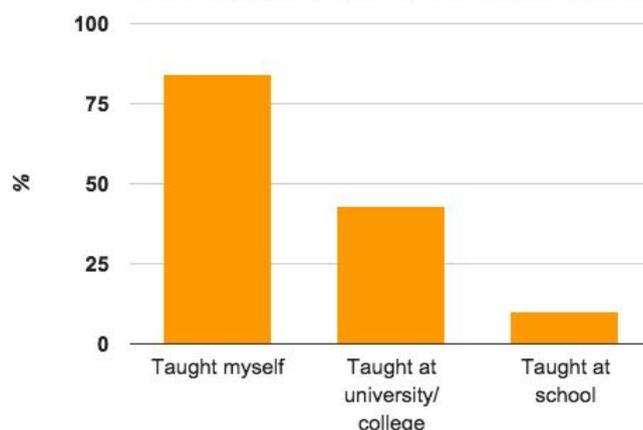
COMPREHENDING TEXTS & ACQUIRING LANGUAGE IN SCIENCE

A MODEL LESSON PLAN - ASE ANNUAL CONFERENCE 4 JANUARY 2017.

Reading technical texts is a skill that all students and science professionals need, and yet it is rarely taught at school. Reading and evaluating scientific information is essential for both personal decision making and participation within society. Yet learners can be reluctant to develop their scientific literacy, put off by inaccessible scientific language, lacking self-confidence or disengaged by textbooks. This Cooperative Learning deep reading lesson plan can help overcome these barriers.

Cooperative Learning is a pre-structured group effort whose success depends on each specific member carrying out specific tasks at specific times. Cooperative Learning has been shown to be highly effective in promoting rapid progress, learners learn well socially, acquire employability skills, and enjoy the process.

Who Taught You to Read STEM Texts?



This deep reading lesson plan presents two simple best-practice strategies, *summarising* and *questioning*, to improve students' technical reading. The strategies are embedded in activities known as *Cooperative Learning Interaction Patterns (CLIPs)*.

The *CLIPs* micromanage how students engage with materials and peers, while affording students empowerment and excitement. *CLIPs* can be easily adapted to fit the time available or to modify the learning experience or provide additional challenge.

Because of this, the lesson plan can be used effectively with *any relevant text*. The lesson has been successfully trialled with learners from year 5 to adults and found to benefit both struggling students and those who are considered effective readers, or even gifted readers.

Initially, while students are learning the reading techniques, the texts should be relatively straightforward and the concepts familiar. With repeated exposure the students will begin to master the strategies and the texts can become more challenging. Potentially, the same text can be used to meet a range of learning objectives over a sequence of lessons. Why not use the same text but adapt the lesson for different subjects and create a common reading strategy school wide?

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→ *Activity Summary*

Summarises the Cooperative Learning strategies used in the lesson.

→ *Using Word-Round to Develop Questioning Skills*

Includes: Accountability and written evidence of learning - Staging the Word-Round - Tips & Tricks - Variations - Picking the best question - Sharing the best question - ICQs (Instruction Checking Questions) - Other uses of the Word-Round in Science.

Read related articles at cooperativelearning.works

→ *The Chemistry of Communication; Oracy Skills in Science...*

A Cooperative Learning commentary on Naomi's original work.

→ *The Chemistry of Collaboration: CL & Science at the ASE...*

Introduction to *Comprehending Texts & Acquiring Language*.

→ *ASE London: Out of the Question ...*

On ASE's London and Essex Conference "Supporting Learning for all in Science"

Further reading

Education Endowment Foundation

- <https://educationendowmentfoundation.org.uk/toolkit/toolkit-a-z/reading-comprehension-strategies/>
- <https://educationendowmentfoundation.org.uk/toolkit/toolkit-a-z/collaborative-learning/>

Ben Rogers' research for Royal Society of Chemistry

- <https://eic.rsc.org/analysis/reading-lessons-for-scientists/2010065.article>

Deep Reading Lesson Plan (Blank)

date/time	class	length of lesson
number in class	seating plan	TA
students with specific reading challenges:		
topic:		
text: (identify the text to use)		
hinge question(s):		

Time activities and insert teacher input at your discretion.

Activity	Teacher	Students
Intro	Introduce purpose/importance of reading in science and outline of lesson. (3min) Teacher allocates groups (1min).	Listen.
Activate Prior Knowledge & inculcate new vocabulary	Catch-1-Partner (C1P). <ul style="list-style-type: none"> ● Explain C1P activity (2min). ● Assess by listening to C1P. 	Pupil A says or guesses the definition of a word - pupil B check, corrects or praises. Pupils swap cards.
First Read	Present hinge question then model pair reading with pupils (2min): Instruction: pair reading. Student A reads a paragraph and student B makes a comment - use the slide to model suitable question types.	Pair reading: students comment either by asking a question, summarizing or making a relevant comment about the paragraph. Set timer. Extension: typically some pairs will finish more quickly (not necessarily the highest attaining). The teacher should provide additional reading or questions.

<p>Second Read - questioning</p>	<p>Groups preferably of max 4 choose the paragraph(s) that best helps them answer the hinge question(s).</p> <p>The teacher explains the individual reading task - re-read the chosen paragraph and write as many questions as they can.</p> <p>Teacher listens / TA supports.</p>	<p>In the group, pupils identify the paragraph that will help answer the hinge question (with a highlighter).</p> <p>Pupils listen to instructions</p> <p>Individual task: students write as many questions as possible about the paragraph. Example questions are on the PPT. .</p> <p>Individuals priority order their questions.</p> <p>Word-Round: Each student propose and explain why their question should be asked. (20s each). Can loop multiple times up to 2 min.</p> <p>Group to decide on best question and write it on mini-whiteboard or flip chart. (3 min). These questions should be used as the basis for upcoming lessons.</p>
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Remember: *WE is more than ME*. Collaboration is not limited to students. Work with your colleagues, invite them to see what you are doing, share resources and ideas.



More on Cooperative Learning Interaction Patterns and tips on monitoring, assessment, etc. are found on **cooperativelearning.works**. For a general introduction to Cooperative Learning and training, visit **werdelin.co.uk**.