



Cohesive Chemistry Newsletter

#76 - How does a candle work?

(3 min read)



I was asked this question in my teacher training course interview back in 2011, and my response floundered around superficial details of a combustion reaction.

In the interest of developing the skill and habit of asking questions, I began my first lesson with Year 1 students by asking them how a candle works. They lit and observed a candle, drew a simple diagram, and were tasked to annotate it with:

- a. Anything they knew.
- b. Questions they had.

Much like my answer in 2011, students were typically able to recall ideas such as combustion, the fire triangle, and exothermicity from their prior knowledge. They struggled, however, to formulate questions that probed deeply into their observations. As all groups had labelled 'wax' on their diagrams, I tried to model some simple questions that might help us deepen our understanding of it. For example:

- What is wax made of?
- What happens after the wax melts?
- Why is the flame on the wick and not the wax?
- Why does the wax disappear over time?

Following this, students seemed much more comfortable generating questions, and I did my best to answer them. Although only a short lesson, there were potential opportunities to discuss the composition of hydrocarbons, changes of state, complete/incomplete combustion, radicals, flame colours, incandescence, and electronic excitation/relaxation.

There were some additional things I intended to do with the candle flame (see this [American Chemical Society video](#))...But I ran out of time!

As an emphasis on the importance of asking questions, this activity worked well. In the coming weeks, I want to develop questioning as a habit using [question cubes](#) and the promise of a 'positive commendation' for every [relevant] question that challenges my own thinking or capacity to explain clearly.

For new teachers, developing questioning as a skill and a habit is crucial for all students. At the lower end of the attainment scale, we want students to be confident in asking clarifying questions. At the top end of the scale, we need students to be probing the boundaries of the course content to maximise their understanding.

I hope the first days of the year are progressing smoothly!

Cheers

Ollie

Note: The IB team at my school is working through our May 2025 results reflection process. I will share my personal findings on completion.

Updates on resources

- [Link](#) to previous newsletters

If you want to unsubscribe from the newsletter, please email me at cohesivechemistry@gmail.com.