Planning for effective practical work

ITAP week 1

Discuss in groups:

* Why might you want to do practical work in your science lessons?
* Rank your list from most to least important

Discuss:

* Do you have different priorities depending on your subject background?
* Does the order vary depending on the age of the students?
* What are some of the difficulties with doing practical work with students?

# The hands-on and minds-on model

Diagram

Description automatically generated

# Task

* In groups, try out the practical activites – there are 6 so use your time carefully
* For each activity, honestly complete the Effectiveness Matrix in your booklet – it is more important that you complete this than that you try all 6 activities

**Practical 1 Investigating the effect of different nerve pathways on reaction times**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

**Practical 2 Comparing stomatal density on leaves**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

**Practical 3 Diffusion of ions in solution – the case of lead iodide**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

**Practical 4 Using Universal indicator to illustrate the process of neutralisation**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

**Practical 5 Measuring the speed of moving objects**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

**Practical 6 Efficiency and Energy transfer**

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| What honestly will students learn when doing this practical (concepts and practical skills?) | What are the practical’s limitations? What misconceptions might it produce, if any? |
| How might you improve the practical? How would you adapt it for a different year group? What other activities might go alongside to consolidate the learning for this practical? | What classroom management issues would this practical raise? How would you organise the practical in the lab – setting out, clearing up, counting equipment back in? |

What other questions would you ask about practicals that will help you decide what practicals to do and why are you doing them?

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