**TAPS Plan for Focused Assessment of Science**

|  |  |  |
| --- | --- | --- |
| **Topic:** Electricity | Year 6  Age 10-11 | Title: Bulb brightness |
| **Logo for planning section of Working ScientificallyWorking Scientifically**  **Plan:** Plan a scientific enquiry to answer a question, recognising and controlling variables. | | **Concept Context**  Compare variations in how electrical components function. |
| **Assessment Focus**   * Can children create a scientific question which identifies the ‘change’ and ‘measure’? * Can children identify control variables to plan a fair test? | | |
| **Activity** *Today we are going to be electrical engineers.*  Provide a mix of basic circuit components and challenge pairs or trios to make a quick simple circuit. Compare and discuss the differences in bulb brightness and how to measure/observe this e.g. light seen through layers of paper, datalogger, observation.  Main task: to investigate how they can change the brightness of the bulb choosing from the available equipment (to include different lamps, cells and different thickness/length of high resistance/fuse wires). Each pair/trio to generate a list of variables which could be changed in their circuit and how they will observe/measure the effect of this change. Create a scientific question which identifies the ‘change’ and ‘measure’. Record their plan e.g. question, variables and diagram of test circuit. Carry out and discuss investigations.  **[Teacher box 4 -  gather evidence in a range of ways.](https://taps.pstt.org.uk/responsive-teaching/)**  **Adapting the activity**  **Support:** Planning framework to scaffold. Help to decide how to measure the brightness.  **Circuit diagram with note about adding extra cellsExtension:** Repeat using a different measurement technique. Choose another question to investigate.  **Other ideas:** Try with motors or buzzers.  **Questions to support discussion:**   * What factors could affect the bulb brightness? * Which variable will you change? (independent variable) * Which variable will you measure / observe? (dependent variable) * Which variables will you keep the same? (control variables) * What is your question? Does it include the ‘change’ and ‘measure’? * Have you found an answer to your question? If yes, what? If not, can you explain why your investigation wasn’t able to give you a clear answer? | | |
| **Assessment Indicators** **Not yet met:** Can identify what they would like to change but may need support to explain what must be kept the same. **Meeting:** Identify a range of factors which may affect the brightness of the bulb and define a succinct scientific question to test, *e.g. What will happen to the (brightness of the bulb), if we change the (length of wire)?* Able to plan a fair test unaided, identifying the different types of variables: what to measure, what to change, what to keep the same  **Possible ways of going further:** Can identify control variables for a range of investigation questions, *e.g. if we look at wire length we need to keep the voltage the same but if we look at voltage we need to keep the wires the same.* Notes difficulties with the ‘life’ of the components. | | |

[Teacher box 4 -  gather evidence in a range of ways. ](https://taps.pstt.org.uk/responsive-teaching/) Teacher box 4 - gather evidence in a range of ways. See TAPS pyramid for more egs