2014 - Assessment in Schools Conference

“Working Scientifically – assessment of practical skills”

Joe Merlino
Science Conventions

- Ideas for interesting practical activities that can be done as a group or individually
- The result is unknown to the student
- The activities target chemistry or physics rather than biology
- Identify science skills that are fundamental to science from F – Yr 12
- Apply science conventions
This task was attempted by students in Years 3 to 7. Students observed and drew a scientific labelled diagram of their thumb. They were then asked to compare their thumb to the finger next to the thumb. This task assessed process of observing and comparing observations and the literacies associated with representing observations as a labelled diagram. Figure 4 below illustrates the key components of a scientific labelled diagram.

**Title**
All diagrams need a title. The title should describe the diagram to the viewer.

**Accuracy**
Accuracy of diagram depends on accurate observation and having skills to represent the observations as a labelled diagram. Accurate diagrams are a good size and accurately represent the main features of the object as a scientific diagram.

**My left thumb**

**Amount of information**
This was an open task and therefore students decided how extensive their representation would be. Simple representations of the thumb showed just one view of the thumb while extended representations either show more than one view of the thumb or show how the thumb is attached to the palm of the hand.

**Labeling**
Labeling is required to identify and communicate features of the thumb to the viewer of the diagram. Labels should connect to the diagram with a line that touches or points directly to the part being labelled.

**Thumb size**
Scientific diagrams need to include some form of scale so that the viewer has an indication of the size of the object represented in the diagram.

Figure 4: Components of a scientific labelled diagram of a thumb
Task 2: Shoe Size Task

The Shoe Size task required students to make measurements of the length of shoe prints, record the measurements in a table and make some simple interpretations of the data. Students in Years 5-7 were also asked to plot a bar graph of the results and make more complex interpretations of data.

Part 1: Measuring Shoe Size and Recording Results as a Table

Numerical data should be recorded in tabular form so that the data are represented in a structured manner so that a reader can identify and comprehend the data. Figure 5 below illustrates the key components of a scientific table.

![Figure 5: Key components of a results table](image-url)