

Technical Sketching

Technical Drawing

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Technical Drawing

When engineers share ideas they use a “Universal Language” called technical drawing. Technical drawing enables a designer in China to share a drawing with a designer in Denmark and have them both interpret the drawing the same way.

The sketching exercises included in the Technical Drawing section of this workbook introduce orthographic projections, sometimes called Multiview drawings; they are *Multiview: LEGO® Motor*, *Multiview: Wheel and Axle*, and *Multiview: Light Sensor Attachment*. We attempted to pick drawings that students may find interesting, but not too hard. The *Exploded View Wheel and Axle* worksheet was included to show students another way to represent a group of objects. Students enjoy problem solving with the *Tankbot Drawing Interpretations*. This handout is designed to reinforce the concept of orthographic projections; how one view relates to another view. *Isometric and Oblique Sketching* pictorial sketches were included to round out the technical sketching worksheets. Encourage students to sketch an isometric or oblique pictorial cube first, and then break things down proportionally. They have more success sketching pictorial drawings if they use this methodology. For more information on how to teach any of these types of drawings search the Internet or buy a technical drawing textbook. Technical drawing is an important concept for any future engineer to know.

Measurement

The measurement worksheets are designed to help teachers reinforce measurement; an important science and technology concept. There are exercises that use both English and metric measurement. The *Measuring Tankbot* exercise was measured with a dial caliper and is in decimal format. It is a great worksheet that students enjoy. Students begin to understand how dimensions are read and the importance of dimensioning when sharing ideas. We included a worksheet called *Dimensioning Rules* which may be modified for younger children.

The Measuring with LEGO® worksheet is very important for LEGO® builders to understand. There are a few key concepts:

- One brick is equal to three plates
- Three plates equals one brick
- When cross bracing with LEGO® if the holes do not line up, then add another plate

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