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Scale Drawing: A Comprehensive Guide**

Definition of Scale Drawing

A scale drawing is a reduced or enlarged representation of an original object, created while maintaining accurate proportions. It allows for the visualization of structures and objects that would otherwise be impractical to draw at full size.

Types of Scale Drawing

- **Reduction Scale Drawing:** Creates a smaller version of the original object.
- **Enlargement Scale Drawing:** Creates a larger version of the original object.
- **Full Scale Drawing:** Creates a drawing of the same size as the original object.

Scale Formula and Calculation

The scale factor is the ratio of the drawing size to the actual size. The formula is:

$$\text{Scale} = \text{Drawing Size} / \text{Actual Size}$$

Example: If a drawing is 5 cm long and represents an actual length of 10 cm, the scale is $5 \text{ cm} / 10 \text{ cm} = 1:2$ (read as "one to two").

How to Draw a Scale Drawing

1. Measure the actual dimensions of the object.
2. Choose a scale factor.

3. Divide the actual dimensions by the scale factor to obtain the drawing dimensions.
4. Draw the object using the scaled dimensions.

Using a Scale Ruler

A scale ruler has multiple scales marked in different units. To use it, align the desired scale with one side of the drawing and measure the length or distance.

Using Scale Drawings

Scale drawings are used in various fields, including:

- Architecture and construction
- Engineering
- Mapping
- Manufacturing
- Science

Understanding Scale Drawings

To interpret scale drawings effectively:

- Identify the scale used.
- Use a scale ruler or a calculator to determine actual measurements.
- Understand the level of detail included in the drawing.

Applications of Scale Rules

Scale rules are used to produce:

- Architectural plans
- Engineering drawings
- Maps
- Scale models

Grade Level of Scale Drawing

Scale drawing is typically introduced in Basic 6 for foundational knowledge and further explored in JSS1 Basic Technology.

Solving Scale Drawings

- Identify the scale factor.
- Convert any given dimension to the desired unit.
- Use the scale factor to calculate the unknown dimension.

Example

A rectangular garden has a length of 10 meters and a width of 6 meters. Draw a scale drawing of the garden at a scale of 1:100.

Steps:

1. Convert the length and width to centimeters: 10 m = 1000 cm, 6 m = 600 cm
2. Calculate the scaled length and width: Length = $1000 \text{ cm} / 100 = 10 \text{ cm}$, Width = $600 \text{ cm} / 100 = 6 \text{ cm}$
3. Draw the rectangle with dimensions 10 cm x 6 cm.

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