Area - Interior Design
Scenario - What size of Christmas tree? (Proportion)

## Standards

## National FACS Standard(s)

FCS 11.4.4 Arrange furniture placement with reference to principles of design, traffic flow, activity, and existing architectural features.

Mathematics Standard(s)
SD Math Standard 9-12.M.1.3. Use formulas to find perimeter, circumference, and area to solve problem involving common geometric figures.

SD Math Standard 9-12.N.3.1 Use estimation strategies in problem situations to predict results and to check reasonableness of results.

SD Math Standard 9-12.M.1.2A Use indirect measurement in problem situations that defy direct measurement.

SD Math Standard 9-12.G.2.3 Use proportion to solve problems.

## Scenario

Steele and Erica have a vaulted ceiling that is 20 feet high, in their living room. They need to determine the approximate height of a Christmas tree that will fit and/or look best in this room. Using the clinometer, help them find out.

## What will you do?

Study the scenario given. You will determine what size Christmas tree will fit and/or look best. Learn how to use the clinometer (Refer to the pamphlet that comes with this tool.) Using the clinometer, determine the angle of selected "Christmas" trees (The school yard or nearby park may have trees that you could use.). Measure the distance from the object to where you used the clonometer. Now you have the angle and the distance to the object. Using the given formula, determine the height of the object.
Angle in degrees/ $1=\mathrm{X} /$ distance in feet
$X=$ angle in degrees $x$ distance in feet
$\mathrm{x}=\operatorname{Tan} 30 \mathrm{x} 15$

## What will you need?

Clinometer and Instructions included with it
Tape measures
Access to Christmas trees or the likeness of Christmas trees
How will you be evaluated?
Teacher-generated checklist:
Demonstrated how to correctly use clinometer
Able to use formula and make accurate calculations
Recognized that good proportion would be a 2-3 ratio (Tree should be around $131 / 3$ feet tall)

## Supplemental Materials

## Resources

Invicta Plastics Limited 1998, Oadby, Lecester, England

