

# Tin-Man

## Standards

### Content

Students will be able to...

- Apply mathematical knowledge to real world situations
- Create models of geometrical concepts
- Find the surface area and volume of three-dimensional figures

### Process

Students will be able to...

- Work cooperatively with peers

## Task Description and Criteria

In a group of 3-4, you will construct a tin man and calculate the amount of tin foil needed to cover it using the Geometry concept of Surface Area. You will construct your tin man using common everyday geometrical objects such as cereal boxes, paper towel rolls, etc. After your tin man is constructed, you need to calculate the surface area. On the last day of the project, you will receive the amount of foil you calculated for surface area. This will determine how good your calculations were.

The objects you choose to construct your tin man with can only be cylinders, prisms, pyramids, cones, and spheres. You must use a minimum of 4 objects. Each group will also turn in a calculations sheet of their surface area which includes measurements of each part, and all work in finding your surface area.

This project will take 4 class days:

**Day 1:** Construct the tin man.

**Day 2:** Start your measurements and calculations of each part.

**Day 3:** Measure and calculate the surface areas. Tell me how much tin foil you will need

**Day 4:** Cover the tin man with the amount of foil you requested from me. Your goal is to leave no part of your tin man uncovered.

Your grade will be based on the following criteria:

- ❖ Class participation (2 points per day)
- ❖ Real world objects used to construct your tin man (at least 4 chosen from the list)
- ❖ Measurements of objects correct
- ❖ Correct formulas used
- ❖ Surface area calculations correct
- ❖ Overall appearance of your tin man (before foiling it)
- ❖ Foiling of your tin man (must be neat, covered as much as you can, and look presentable)

## Rubric

Class Participation:

Day One: 2 1 0

Day Two: 2 1 0

Day Three: 2 1 0

Day Four: 2 1 0

Objects Used to Construct: 5 4 3 2 1

Measurement of Objects Correct: 5 4 3 2 1

Correct Formulas Used: 5 4 3 2 1

Surface Area Calculation Correct: 5 4 3 2 1

Overall appearance (pre-foil): 5 4 3 2 1

Foiling:

Neatness 5 4 3 2 1

Foil Coverage 5 4 3 2 1

Appearance 5 4 3 2 1

Total: / 48 points