Design Activity Specs and Layout
Robot in Space Design Problem

Problem Situation

You and your team are robot programmers working in space on a space station. Robots are capable of doing dangerous jobs instead of people. Being able to program robots is an important job on the space station. Your robot will be responsible for moving items in space to make a safer environment and to help astronauts in space.

Challenge

Your team will have to design and program a robot to perform three missions:
1. Collect space debris.
2. Move a satellite.
3. Rescue a stranded utility droid.
Each mission is worth various points. Check the rules page for these values.

Robot Mission Rules

1. The robot must start its mission in the Base area.
2. The match time limit is 2 minutes.
3. Robot performance must be autonomous. You may not touch the robot once it is out of the Base area, or you will lose points.
4. Each time you touch the robot when it is out of the Base area on a mission you will be penalized with the removal of a piece of space debris worth 5 points.
5. You may start over anytime you like but if the robot is touched you will receive the penalty stated in rule 4.

Robot Mission Point Sheet

1. Space Debris - **5 points each**
                  40 points possible
Return each piece of space debris to base. If all 8 pieces are transferred to base you will receive a total of 40 points.
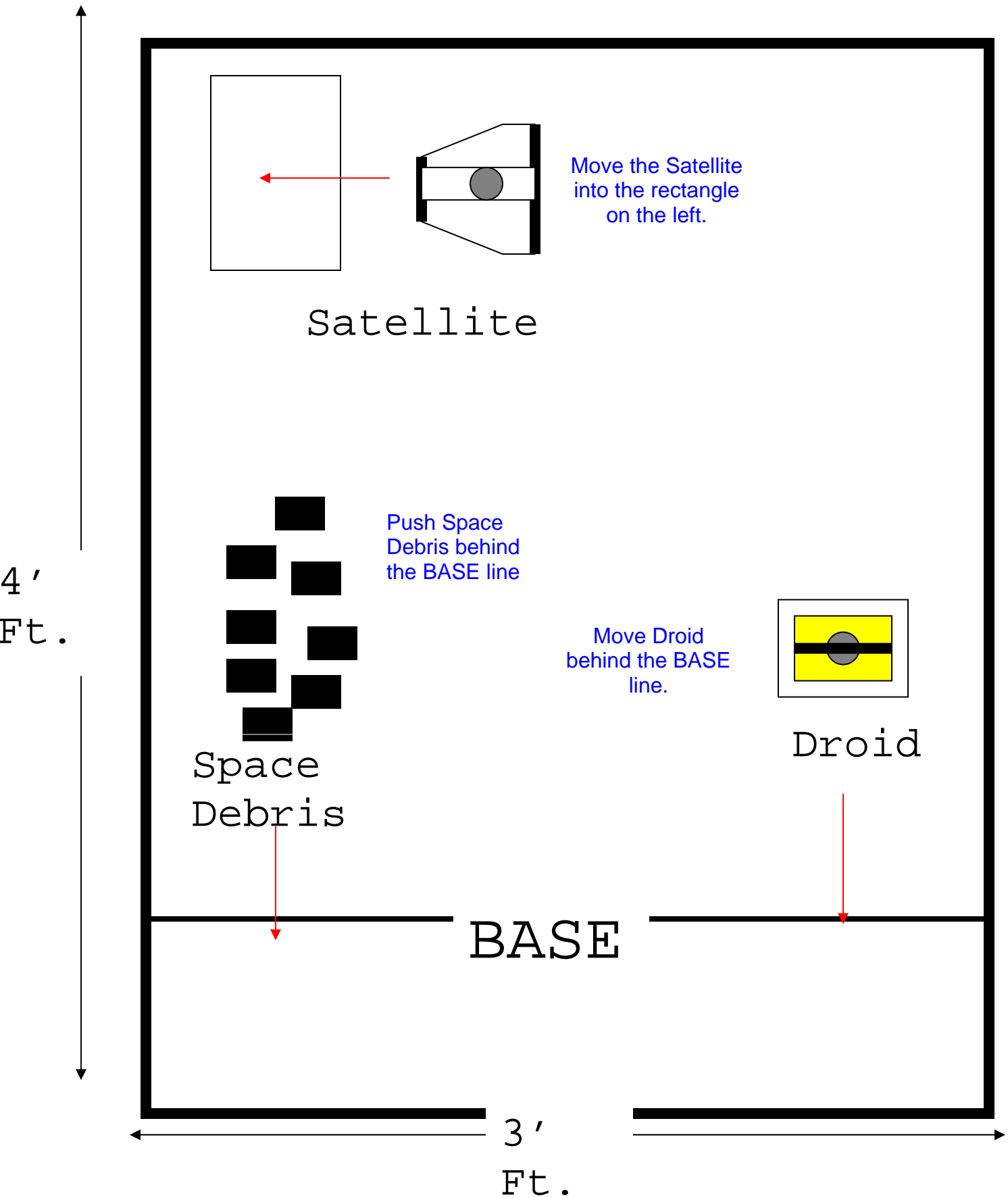
2. Satellite - **35 points**
A satellite's orbit is dangerously close to the space station. It has to be moved to a safer orbit. You need to reposition the satellite.

3. Utility Droid Retrieval - **40 points**

A utility droid working in space has encountered a problem. Its propulsion system stopped working and it needs help from the robot to return to base.
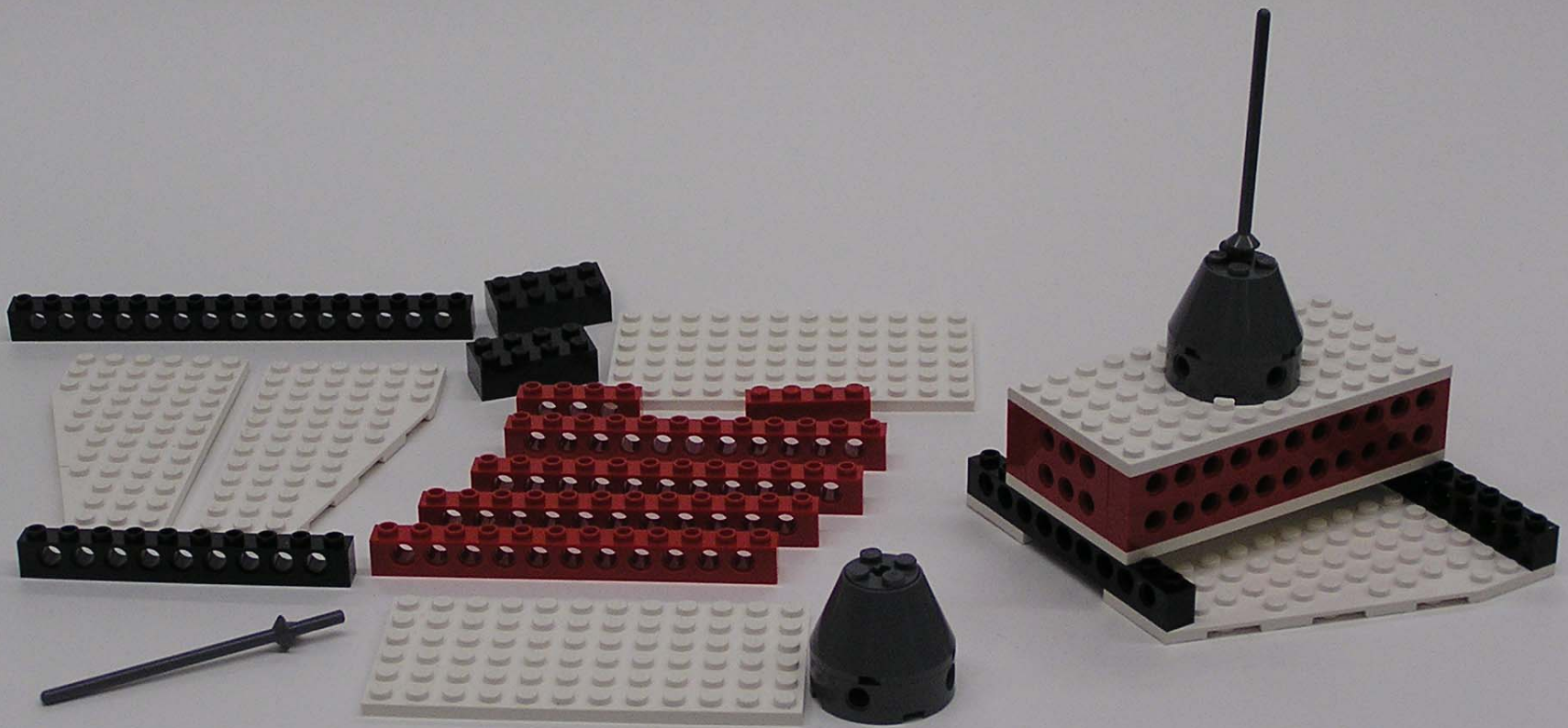
Robotics

Move the Satellite into the rectangle on the left.

Satellite

Push Space Debris behind the BASE line

Move Droid behind the BASE line.

Droid

Space Debris

BASE

4' Ft.

3' Ft.

Mission Models

The following slides show pictures of each mission model and the parts needed to make them. If you do not have these parts make up your own models.

Satelite

Droid

Space Debris