Robot Boxes

Materials	☐ Robot Boxes sheet with 6 labeled boxes `message; length; width; myAction; measure; answer` ☐ index cards and pencils ☐ 1 set of Robot Boxes cards ☐ 1 Robot Boxes Record Sheet ☐ 1 Robot Boxes: CALCULATOR Program Sheet ☐ 1 Robot Boxes: ROBOT Program Sheet ☐ 1 Robot Boxes: FILLER Instructions Sheet ☐ number cards 1–9
Players	3
Skill	Finding the area and perimeter of rectangles by applying formulas; Following the instructions in a program, substituting values where needed
Object of the Game	To get the Robot to perform a silly rectangle dance.

Directions:

1. Players take turns. One player is the “Robot,” one is the “Calculator,” and one is the “Filler.”
2. Players follow the instructions on their sheet.
3. FILLER instructions:
    a. Get the Robot Boxes: FILLER Instruction sheet.
    b. Place the six boxes where the Robot and Calculator can both see them.
    c. Think of a funny message and silly action you want the Robot to do.
    d. Follow your instructions to fill the boxes.
4. ROBOT instructions:
    a. Get the Robot Boxes: ROBOT Program Sheet and read the program to yourself.
    b. Wait for the Filler to place cards in the boxes.
    c. Start your program, using the contents of the boxes to control your actions. For example, if the **`length`** box has 3 in it, move 3 steps.
5. CALCULATOR instructions:
    a. Get the Robot Boxes: CALCULATOR Program Sheet, the Robot Boxes Record Sheet, and one index card.
    b. Wait for the Filler to place cards in five of the boxes.
    c. Start your program, using the contents of the **`measure`**, **`length`**, and **`width`** boxes. Use the record sheet to help you calculate the Area or Perimeter.
6. When the Robot is finished executing its program, empty the boxes, shuffle the cards, switch roles, and play again!

Robot Boxes

ROBOT Program Sheet

1. Here is your program. Read it to yourself.
    a. Say **`message`**;
    b. Move **`length`** steps;
    c. Say "I am **`length`** units long!"
    d. Turn right;
    e. Move **`width`** steps;
    f. Say "I am **`width`** units wide!"
    g. Turn right;
    h. Move **`length`** steps;
    i. Turn right;
    j. Move **`width`** steps;
    k. Do **`myaction`**;
    l. Wait for Calculator to fill **`answer`** box.
    m. Say "**`measure`** is **`answer`**"

2. Wait for Filler to place cards in the boxes.
3. Start your program, using the contents of the boxes to control your actions.

    For example, if the card in the **`length`** box has 3 in it, move 3 steps.

Robot Boxes

FILLER Instructions Sheet

A. Place the boxes where Robot and Calculator can both see them.

B. Take two index cards, shuffle the number cards, then fill the boxes as follows:

   a. **`message`**: Write a message (for the robot to say) on an index card.

      e.g. "I am a robot and I love rectangles."

   b. **`length`**: Choose a number card.

   c. **`width`**: Choose a number card.

   d. **`myAction`**: Write an action on an index card.

      e.g Jump, Bow, Clap, Spin, etc.

   e. **`measure`**: Choose an Area or Perimeter card.

   f. **`answer`**: Leave this box empty for Calculator to fill.

C. Have fun watching Robot dance!

Robot Boxes

CALCULATOR Program Sheet

A. Get the Robot Boxes Record Sheet and one index card.

B. Here is your program. Read it to yourself.

1. If (**measure** is Area), then
    i. Multiply **length** times **width**.
    ii. Write the result on the index card.
    iii. Place card in **answer** box.
2. If (**measure** is Perimeter), then
    i. Add **length** + **length** + **width** + **width**.
    ii. Write the result on the index card.
    iii. Place card in **answer** box.

C. Wait for Filler to place cards in the boxes.

D. Start your program.

Use the recording sheet to help you calculate the Area or Perimeter.

message	**length**
width	**myAction**
measure	**answer**

A Area	A Area	P Perimeter	P Perimeter
A Area	A Area	P Perimeter	P Perimeter
A Area	A Area	P Perimeter	P Perimeter

Robot Boxes **Record Sheet**

Perimeter formulas: p = l + l + w + w p = (2 * l) + (2 * w) p = 2 * (l + w)
Area formula: A = l * w

Length	**Width**	**Circle** A **(area) or** p **(perimeter)**	**Equation**	**measure**
		A **or** p		
		A **or** p		
		A **or** p		
		A **or** p		
		A **or** p		

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		A **or** p		
		A **or** p		