Learning Coding and Math with RoboBlockly

Teaching Resource for Grade 3 Math

Harry H. Cheng

UC Davis Center for Integrated Computing and STEM Education (C-STEM)

http://c-stem.ucdavis.edu

http://roboblockly.ucdavis.edu
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Additional Contributor(s):
Kayce Mastrup
How to Use RoboBlockly Activities in your Classroom

What is the purpose of RoboBlockly?
In RoboBlockly, students program a robot using a user-friendly drag-and-drop method. Students will complete basic problem solving to move a robot or multiple robots.

RoboBlockly is built to allow students to work at their own pace, but in general each problem should take approximately 5 minutes to complete each activity. We encourage you to give students additional time if needed or make it clear that they don’t need to finish the entire set of activities during one class session.

General Computer Usage Requirements
Technology Requirements: Any modern browser on computers, laptops, tables, or smartphones with any type of operating system.

It is important to know that every browser functions differently. We encourage you to test RoboBlockly on the computers you will have students using before implementation. Please test out the following: audio and video streaming quality, default browser specific mechanisms for saving blocks and saving Ch code, etc. all so you are better able to support your students. Make sure that pop ups have been enabled on all computers.

You may wish to provide headphones or ask students to bring headphones to allow students to independently watch tutorial videos.

Prepare yourself
Go through the activities yourself so that you are familiar with what your students will be experiencing. The Teacher Resource Packet contains all the activities and solutions for the pathway. Please note that the activities build on previous activities in each pathways such that students may need to complete some or all activities prior to the activity selected.

1) Determine the purpose for students using RoboBlockly:
   - To support student learning in Math,
   - To support student learning in Computer Programming,
   - To support student learning in Robotics.

2) Based on your purpose, determine what additional resources your students will need for instruction. We do not recommend using RoboBlockly to introduce a mathematical concept but to rather use it for skill building or as a culminating performance task.
   Use as skill building: We recommend that you provide your students with a worksheet that includes important related definitions, work space, leading questions, etc. and encourage your students to refer to their class notes which cover these topics.
   Use as a culminating performance task: Carefully select which activity directly relates to the content you have taught, making note that the previous activities may be necessary to complete to build prior knowledge.

Prepare your students
Help students get excited about RoboBlockly by inspiring students and discussing how computer science impacts every part of our lives. As a class, list things that use code in everyday life, or discuss different ways technology impacts our lives etc.

When using RoboBlockly in class, first demonstrate to students how to navigate and use the RoboBlockly website. There are five Video Tutorials, along with a self-guided interactive non-video tutorial which should be used to help familiarize your students with the different functionalities of RoboBlockly. Helping students understand the functionality of RoboBlockly and which elements can be manipulated in which manners is very important to ensuring your students have full access to the content.
**Pre-Requisite Skills**

**Math**
We are currently developing a comprehensive wiring guide to assist you with your planning. Please refer to the Table of Contents Standard Mapping for a complete list of Common Core Grade 3 Math Standards addressed in the RoboBlockly activities.

**Computer**
- Basic computer skills:
  - Drag and drop using a mouse
  - Key boarding
  - Navigating a web browser
  - Zoom In/Out in a browser
  - Disabling or enabling pop-up windows
  - Adjusting volume for videos

**Extension**
Using hardwired robots, Linkbot Controller, RoboSim or Robot Controller to execute programs built in RoboBlockly.

All can be downloaded from the UC Davis C-STEM Center’s webpage: [http://c-stem.ucdavis.edu/downloads/](http://c-stem.ucdavis.edu/downloads/)
# Learning Coding and Math with RoboBlockly

*Teaching Resource for Grade 3 Math*

## Table of Contents: Activity Description

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<th>Activity</th>
<th>CCSSM</th>
<th>Blocks Used</th>
</tr>
</thead>
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<td>1. Applying Multiplication to Drive the Robot Forward</td>
<td>3.OA.1</td>
<td>driveDistance</td>
</tr>
<tr>
<td>2. Applying Division to Drive the Robot Forward</td>
<td>3.OA.1</td>
<td>driveDistance</td>
</tr>
<tr>
<td>3. Multiple Operations: Addition and Multiplication to Drive the Robot Forward</td>
<td>3.OA.1</td>
<td>driveDistance</td>
</tr>
<tr>
<td>4. Multiple Operations: Division and Subtraction to Drive the Robot Forward</td>
<td>3.OA.1</td>
<td>driveDistance</td>
</tr>
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<td>5. Problems Involving Measurement &amp; Data: Comparing Time</td>
<td>3.MD.1</td>
<td>driveDistance</td>
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<td>6. Problems Involving Measurement &amp; Data: Comparing Data Sets</td>
<td>3.MD.3</td>
<td>driveDistance</td>
</tr>
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<td>7. Geometry: Calculating the Area of a Rectangle</td>
<td>3.MD.7</td>
<td>driveDistance</td>
</tr>
</tbody>
</table>
# Learning Coding and Math with RoboBlockly

*Teaching Resource for Grade 2 Math*

## Table of Contents: Standard Mapping

<table>
<thead>
<tr>
<th>Common Core State Standards for Mathematics – Grade 1</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.OA.1</strong></td>
<td>Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</td>
</tr>
<tr>
<td><strong>3.MD.1</strong></td>
<td>Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</td>
</tr>
<tr>
<td><strong>3.MD.3</strong></td>
<td>Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <em>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</em></td>
</tr>
<tr>
<td><strong>3.MD.7</strong></td>
<td>Relate area to the operations of multiplication and addition.</td>
</tr>
</tbody>
</table>

## Textbook to Activity Alignment

<table>
<thead>
<tr>
<th>Learning Robot Programming with Linkbot for the Absolute Beginner 5th Edition</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 5.4 Move a Distance for a Two-Wheel Robot</td>
<td>X X X X X</td>
</tr>
<tr>
<td>Section 5.6 Turn Left and turn right</td>
<td>X</td>
</tr>
</tbody>
</table>
Activity #1 Applying Multiplication to Drive the Robot Forward

Common Core State Standards - Mathematics:
3.OA.1 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Objective: Students will apply their understanding multiplication to drive the robot forward.

RoboBlockly Student Activity:

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
<th>To drive the robot forward you use the driveDistance() block:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="driveDistance.png" alt="driveDistance block" /></td>
</tr>
<tr>
<td></td>
<td>For your activities you will need to change the numbers inside the blue boxes in order for the robot to reach the correct stopping point. You also need to see what operation you will be using.</td>
</tr>
<tr>
<td></td>
<td>Have Fun!</td>
</tr>
</tbody>
</table>

| Pre-Placed Blocks      | ![Pre-Placed Blocks](preplaced_blocks.png)               |
| Problem Statement      | Modify the preplaced blocks so the robot will drive 18 units forward. You can change one or both of the numbers, just make sure your numbers have a product of 18 units. |
| Wrong Prompt           | Sorry, you did not drive the robot the correct total distance. Please try again – use the Hint if you feel stuck. |
| Hint                   | You want to drive the robot a total of 18 units. The current block will drive the robot: 6 x 4 = 24 units. Think “what should the values be to drive the robot 18 units?” OR “what two numbers have a product of 18?” |
| Possible Solution in C | #include <linkbot.h>  
CLinkbotI robot;  
double radius = 1.75;  
robot.driveDistance(6 * 3, radius); |
Activity #1 Applying Multiplication to Drive the Robot Forward

Picture of solution in RoboBlockly

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources ->TeachMath3->RoboBlocklySolution->m1.xml

Student Mathematical Calculations
Students will need to first see that the pre-placed blocks have a product of 24: 6 x 4 = 24

They then need to change the values to any two numbers that have a product of 18. Here are all the possible combinations:
1 x 18 = 18  
2 x 9 = 18  
3 x 6 = 18
18 x 1 = 18  
9 x 2 = 18  
6 x 3 = 18

C-STEM text alignment: Robot Programming with Linkbot for the Absolute Beginner, 5th edition
a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
Activity #2 Applying Division to Drive the Robot Forward

Common Core State Standards - Mathematics:
3.OA.1 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Objective: Students will apply their understanding of division to move the robot forward.

RoboBlockly Student Activity:

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
<th>Change the values in the driveDistance block so your robot drives the correct distance. This time you will be using division.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Placed Blocks</td>
<td><img src="driveDistance.png" alt="Pre-Placed Blocks" /></td>
</tr>
<tr>
<td>Problem Statement</td>
<td>Modify the preplaced blocks so the robot will drive 7 units forward. You can change one or both of the numbers, just make sure your numbers have a quotient of 7 units.</td>
</tr>
<tr>
<td>Wrong Prompt</td>
<td>Sorry, you did not drive the robot the correct total distance. Please try again – use the Hint if you feel stuck.</td>
</tr>
<tr>
<td>Hint</td>
<td>You want to drive the robot a total of 17 units. The current block will drive the robot: $42/5 = 8.4$ units. Think “what should the values be to drive the robot 7 units?” OR “what two numbers have a quotient of 7?”</td>
</tr>
</tbody>
</table>
| Possible Solution in Ch | ```c
#include <linkbot.h>
CLinkbotI robot;
double radius = 1.75;

robot.driveDistance(42 / 6, radius);
``` |


Activity #2 Applying Division to Drive the Robot Forward

Picture of solution in RoboBlockly

![Picture of solution in RoboBlockly](image)

Problem Statement:
Modify the preplaced blocks so the robot will drive 7 units forward. You can change one or both of the numbers, just make sure your numbers have a quotient of 7 units.

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources -> TeachMath3 -> RoboBlocklySolution -> m2.xml

Student Mathematical Calculations
Students will need to first see that the pre-placed blocks have a quotient of 8.4: \( \frac{42}{5} = 8.4 \)

They then need to change the values to any two numbers that have a quotient of 7. Here are a few of the possible solutions:

\[
\begin{align*}
42/6 &= 7 \\
14/2 &= 7 \\
7/1 &= 7
\end{align*}
\]

C-STEM text alignment: Robot Programming with Linkbot for the Absolute Beginner, 5th edition
a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
Activity #3  Multiple Operations: Addition and Multiplication to Drive the Robot Forward

Common Core State Standards - Mathematics:
3.OA.1 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Objective: Students will apply their understanding of simplifying with multiple math operations to move the robot forward.

RoboBlockly Student Activity:

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your driveDistance block will now contain more than one math operation.</td>
</tr>
<tr>
<td>Read the directions carefully.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-Placed Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image](driveDistance(distance 3 3 2 int).png)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify the preplaced blocks so the robot will drive 7 units forward. You can change one, two or all three numbers. The operations must remain the same and are performed according to Order of Operations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wrong Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorry, you did not drive the robot the correct total distance. Please try again – use the Hint if you feel stuck.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hint</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to drive the robot a total of 7 units. The current block will drive the robot: 5 x 3 + 2 = 15 + 2 = 17 units. Think “what should the values be to drive the robot 7 units?” Remember you first must perform the multiplication then the addition. Try just changing one number at a time.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible Solution in Ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>#include &lt;linkbot.h&gt;</td>
</tr>
<tr>
<td>CLinkbotI robot;</td>
</tr>
<tr>
<td>double radius = 1.75;</td>
</tr>
<tr>
<td>robot.driveDistance(6 * 3 + 3, radius);</td>
</tr>
</tbody>
</table>
Activity #3  Multiple Operations: Addition and Multiplication to Drive the Robot Forward

Student Mathematical Calculations
Students need to first simplify the express by either performing the math or running the program.

The pre placed blocks simplify: $5 \times 3 + 2 = 15 + 2 = 17$ units

Students can change as many of the numbers as they’d like but the operations must remain the same. Here is one possible solution to this activity:

$2 \times 3 + 1$

$6 + 1$

$= 7$

C-STEM text alignment: *Robot Programming with Linkbot for the Absolute Beginner, 5th edition*

a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
Activity #4 Multiple Operations: Division and Subtraction to Drive the Robot Forward

Common Core State Standards - Mathematics:
3.OA.1 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Objective: Students will apply their understanding of simplifying expressions with multiple operations to move the robot forward.

RoboBlockly Student Activity:

<table>
<thead>
<tr>
<th><strong>Initial Student Prompt</strong></th>
<th>Just as in the previous problem, your driveDistance block will contain more than one math operation, this time you will have division and subtraction to simplify.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Placed Blocks</strong></td>
<td><img src="image.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td>Modify the preplaced blocks so the robot will drive 21 units forward. You can change one, two or all three numbers. The operations must remain the same and are performed according to Order of Operations.</td>
</tr>
<tr>
<td><strong>Wrong Prompt</strong></td>
<td>Sorry, you did not drive the robot the correct total distance. Please try again – use the Hint if you feel stuck.</td>
</tr>
<tr>
<td><strong>Hint</strong></td>
<td>You want to drive the robot a total of 21 units. The current block will drive the robot: 42 / 14 – 1 = 2 units. Think “what should the values be to drive the robot 21 units?” Try to get close using the division and then subtract from there.</td>
</tr>
<tr>
<td><strong>Possible Solution in C</strong></td>
<td>#include &lt;linkbot.h&gt;&lt;br&gt;CLinkbotI robot;&lt;br&gt;double radius = 1.75;&lt;br&gt;robot.driveDistance(42 / 2 - 0, radius);</td>
</tr>
</tbody>
</table>
Activity #4 Multiple Operations: Division and Subtraction to Drive the Robot Forward

Picture of solution in RoboBlockly

Problem Statement:
Simply 36 / (6-2). Use your solution to drive the robot forward.

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources -> TeachMath3 -> RoboBlocklySolution -> m4.xml

Student Mathematical Calculations
Students need to first simplify the expression by either performing the math or running the program.

The pre-placed blocks simplify:

\[ \frac{42}{14} - 1 \]
\[ 3 - 1 = 2 \]

Students can change as many of the numbers as they’d like but the operations must remain the same.

Here is one possible solution to this activity:

\[ \frac{42}{2} + 0 \]
\[ 21 + 0 \]
\[ = 21 \]

C-STEM text alignment: *Robot Programming with Linkbot for the Absolute Beginner, 5th edition*

a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
**Activity #5** Problems Involving Measurement & Data: Comparing Time

**Common Core State Standards - Mathematics:**
3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

**Objective:** Students will apply their understanding of reading and comparing time to move the robot forward.

**RoboBlockly Student Activity:**

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
<th>There are many cool things you can do in RoboBlockly. Allows you to ask for input from the user:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For this problem you will only run the program – then you will need to enter your answer in the pop up box.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-Placed Blocks</th>
<th>prompt for variable with message “How many minutes ahead is clock 1 compared to clock 2?”</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “How many minutes ahead is clock 1 compared to clock 2?”</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Wrong Prompt</th>
<th>Sorry, you did determine the time difference correctly. Please try again. Feel free to use the hint if you feel stuck.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hint</th>
<th>After the program completes, determine what time each clock says, and then use subtraction to find out how many minutes ahead Clock 1 is compared to clock 2.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Possible Solution in C</th>
<th>#include &lt;linkbot.h&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLinkbot1 robot;</td>
</tr>
<tr>
<td></td>
<td>printf(&quot;How many minutes ahead is clock 1 compared to clock 2?\n&quot;);</td>
</tr>
<tr>
<td></td>
<td>scanf(&quot;%lf&quot;, &amp;variable);</td>
</tr>
</tbody>
</table>
Activity #5 Problems Involving Measurement & Data: Comparing Time

Picture of solution in RoboBlockly

![Clocks showing different times]

Problem Statement:
Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “How many minutes ahead is clock 1 compared to clock 2?”

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources -> TeachMath3 -> RoboBlocklySolution -> m5.xml

Student Mathematical Calculations
The robot will not move in this problem. Students will run the program and two clocks will be drawn. A pop up box will open and the student will need to identify how many minutes ahead clock 1 was compared to clock 2:
- Clock 1: 2:15
- Clock 2: 2:05

Clock 1 is 10 min ahead of clock 2.

C-STEM text alignment: Robot Programming with Linkbot for the Absolute Beginner, 5th edition
a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
### Activity #6 Problems Involving Measurement & Data: Comparing Data Sets

**Common Core State Standards - Mathematics:**
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

**Objective:** Students will apply their understanding of reading a bar graph to determine how many more or how many less there are using the information presented in the scaled bar graph.

**RoboBlockly Student Activity:**

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
<th>Run the preplaced blocks and use the drawing to answer the question. For this problem you will need to read a bar graph and answer a question about the information presented.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Placed Blocks</td>
<td><img src="image" alt="Prompt for variable with message" /> &quot;How many more Cats are there than Fish?&quot;</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “How many cats are there than fish?”</td>
</tr>
<tr>
<td>Wrong Prompt</td>
<td>Sorry, you did determine the correct difference between cats and fish. Please try again. Feel free to use the hint if you feel stuck.</td>
</tr>
<tr>
<td>Hint</td>
<td>After the program completes, determine how many cats and fish there are, and then use subtraction to find out how many more cats there are compared to fish.</td>
</tr>
</tbody>
</table>
| Possible Solution in Ch| #include <<linkbot.h>  
  CLinkbotI robot;  
  double radius = 1.75;  
  printf("How many more cats are there than fish?\n");  
  scanf("%lf", &variable); |
Activity #6 Problems Involving Measurement & Data: Comparing Data Sets

Picture of solution in RoboBlockly

Problem Statement:
Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “How many cats are there than fish?”

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources -> TeachMath3 -> RoboBlocklySolution -> m6.xml

Student Mathematical Calculations
Students will need to determine how many cats and fish are in the bar graph.
There are 18 cats.
There are 6 fish.

There is a difference of 12 – that is there are 12 more cats than fish in the data provided.

C-STEM text alignment: Robot Programming with Linkbot for the Absolute Beginner, 5th edition
a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)
## Activity #7 Geometry: Calculating the Area of a Rectangle

**Common Core State Standards - Mathematics:**

3.MD.7 Relate area to the operations of multiplication and addition.

**Objective:** Students will apply their understanding of multiplication and addition to area.

**RoboBlockly Student Activity:**

<table>
<thead>
<tr>
<th>Initial Student Prompt</th>
<th>Run the preplaced blocks and use the drawing to answer the question. For this problem you will need to calculate the area of a rectangular house.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Placed Blocks</td>
<td>prompt for variable with message “What is the area of the house?”</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “What is the area of the house?”</td>
</tr>
<tr>
<td>Wrong Prompt</td>
<td>Sorry, you did determine the correct area for the house. Please try again. Feel free to use the hint if you feel stuck.</td>
</tr>
<tr>
<td>Hint</td>
<td>After the program completes, determine what the dimensions (height and width) of the house is. Then use the area formula height x width to calculate the area.</td>
</tr>
</tbody>
</table>
| Possible Solution in Ch| `#include <linkbot.h>`  
  `CLinkbotI robot;`  
  `double radius = 1.75;`  
  `printf("What is the area of the house?\n");`  
  `scanf("%lf", &variable);` |
Activity #7  Geometry: Calculating the Area of a Rectangle

Picture of solution in RoboBlockly

Problem Statement:
Run the program using the pre-placed blocks. Use the drawing to the left to answer the following question: “What is the area of the house?”

The page at roboblockly.ucdavis.edu says:

What is the area of the house?

204

Location of solution for “Load Blocks” tab in RoboBlockly
C-STEM Studio -> Teaching Resources -> TeachMath3 -> RoboBlocklySolution -> m7.xml

Student Mathematical Calculations
After running the program students will find the house is 17 units wide with a height of 12 units.

\[ A = w \times h \]

Area of the house = 17 \times 12 = 204 units squared

C-STEM text alignment: Robot Programming with Linkbot for the Absolute Beginner, 5th edition
a) Section 5.4 Move a Distance for a Two-Wheel Robot. (driveDistance block)