



7.6 Passing

Hands and feet · Robot club · about 20 min

Name _____

Class _____

Date _____

What this lesson is about

Aim at a team mate's tag, judge the power from its distance.

- Find the receiver
- Aim
- Range
- Receiving

Questions

7 marks in all

1. A kick goes about 45 cm, and the ball starts about 8 cm in front of your centre. How far from you, in cm, [1 mark] should the receiver be?

2. What does this program print? [1 mark]

```
dist = 70
if dist > 56:
    print("forward", dist - 53)
elif dist < 50:
    print("backward", 53 - dist)
else:
    print("kick from here")
```

3. Put the steps of a pass in order. [1 mark]

Number the lines 1 to 5 to put them in the right order.

```
___ gripper("close")
___ Carry the ball to about 53 cm from the receiver
___ aim_at(101) again
___ aim_at(101)
___ kick()
```

4. What does this program print? [1 mark]

```
error = 20
print(max(-30, min(30, error * 3)))
error = -4
print(max(-30, min(30, error * 3)))
```

5. Why does the passing code call `aim_at(101)` a second time after moving? [1 mark]
- ☐ A Driving forward or back changes the bearing a little
 - ☐ B The tag's id changes when you move
 - ☐ C `kick()` only works after two aims
 - ☐ D The gripper opens when the robot drives
6. You are the receiver. What should your program do? [1 mark]
- ☐ A Face the passer, wait, and close the jaws when `distance()` drops to a few centimetres
 - ☐ B Close the jaws before the kick so they are ready
 - ☐ C Drive at the ball as fast as you can
 - ☐ D Wait until `holding()` says red, then close the jaws
7. The receiver is 70 cm away and you kick without moving. What happens? [1 mark]
- ☐ A The ball stops about 17 cm short of the receiver
 - ☐ B The ball rolls past the receiver
 - ☐ C The ball reaches the receiver
 - ☐ D The kick is stronger to make up the distance

The task: pass to your partner

Grip the ball, get to kicking range of the blue robot, aim, and kick so the ball stops within the square around it.

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

# close the jaws (it waits while they move)
gripper("close")
# kick: one turn of the kicker winds the spring and lets it go
kick()
# pause 5 s (the robot keeps doing what it was told)
wait(5)
```

Plan your program here, then type it in and press Run.



Do it on the robot

www.bugbotlab.com/learn/7-6-passing/

The simulator checks it and tells you when it passes. Nothing to install, no account.

Challenges

1. Pass to a partner who is moving: aim a little ahead of them.
2. Make the pass bounce off the right wall on its way (aim at the wall, and think about the range).
3. Write `pass_to(tag_id)` that does the whole thing, and time it.