



F3.8 Project: survey the room

Strings, lists and records · GCSE · about 25 min

Name _____

Class _____

Date _____

What this lesson is about

Look in eight directions, store the survey as records, report on it and head for open space.

- The brief
- Plan the data first
- Step 1: collect the survey
- Step 2: a table
- Step 3: the report
- Test with data you can check

Questions

4 marks in all

1. Why plan what one record looks like before writing the survey loop?

[1 mark]

- ☐ A Every later loop depends on the fields the records have
- ☐ B Python needs records declared first
- ☐ C It makes the robot turn faster
- ☐ D Records cannot be changed later

2. What does this program print?

[1 mark]

```
survey = [{"direction": 0, "distance": 31.0}, {"direction": 45, "distance": 42.5}, {"direction": 90, "distance": 51.0}]
total = 0
for r in survey:
    total = total + r["distance"]
print(total / len(survey))
```

3. What does this program print?

[1 mark]

```
survey = [{"direction": 0, "distance": 31.0}, {"direction": 45, "distance": 42.5}, {"direction": 90, "distance": 51.0}]
open_count = 0
for r in survey:
    if r["distance"] > 40:
        open_count = open_count + 1
print(open_count)
```

4. Why test the report on a small made-up survey before using the robot's data?

[1 mark]

- ☐ A You can work the right answers out by hand and compare
- ☐ B Made-up data is more accurate
- ☐ C The robot cannot store records
- ☐ D It is required by Python

The task: survey the room

Do the survey from the brief. Print the table, then report lines in exactly this shape (these are the numbers a correct program gets in this room): Then turn to face the farthest direction and play a note.

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

survey = []
for i in range(8):
    turn_right(30, angle=45)
```

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



Do it on the robot

www.bugbotlab.com/learn/f3-8-project-survey-the-room/

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

Challenges

1. Add a field `open` to each record, `True` or `False`, and use it for the count.
2. Round the average to one decimal place, and print the table with a line of dashes under the heading.
3. Survey in 16 directions instead of 8. What must change, and what can stay the same?