Examples of pupils’ work
Examples are from

- Investigation 2, Q. 1 A B "Describe the pattern's structure and predict the expression for the total number of lights."
- Investigation 2, Q.1 D E "Explain how the numbers and variables in your pattern are related to the lights in the pattern"
Describe the pattern's structure and predict the expression for the total number of lights.” (Inv 2, Q1 A B)

1) a) Describe the pattern's structure in words or pictures and how it is different from other patterns you have seen. It might help if you think about the starting pattern and how it grows. (You may wish to use the Step Forward and Step Back to help).

It is different because it has two different colors.

b) Predict: What do you think the expression to give you the total number of lights (for any pattern of this type) will be?

There's gonna be two different expressions, but the total lights is addition of both expressions.

2) It is 3 orange lights surrounded with green lights.

b) Predict: What do you think the expression to give you the total number of lights (for any pattern of this type) will be?

8 x number of rows

What are the pupils noticing?

1) a) Describe the pattern's structure in words or pictures and how it is different from other patterns you have seen. It might help if you think about the starting pattern and how it grows. (You may wish to use the Step Forward and Step Back to help).

b) Predict: What do you think the expression to give you the total number of lights (for any pattern of this type) will be?

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1) a) Describe the pattern's structure in words or pictures and how it is different from other patterns you have seen. It might help if you think about the starting pattern and how it grows. (You may wish to use the Step Forward and Step Back to help).

b) Predict: What do you think the expression to give you the total number of lights (for any pattern of this type) will be?

\[ (5 \times \text{base}) \times (3 \times \text{base}) \]
"Explain how the numbers and variables in your pattern are related to the lights in the pattern” (Inv 2, Q1 D E)

d) Check: Was your prediction correct? [The lights in the Pattern Player would be correctly coloured]. If not, modify your expression.

- Yes

e) Explain: How the numbers and variables in your expression are related to the lights in the pattern.

- They’re linked

d) Check: Was your prediction correct? [The lights in the Pattern Player would be correctly coloured]. If not, modify your expression.

- It’s correct!

e) Explain: How the numbers and variables in your expression are related to the lights in the pattern.

- Well there is 3 orange blocks and 5 green and in my expression it says (3 x 60b) x (5 x 60b) therefore they will change at the same rate and with power

- How will you use the software to enable pupils to respond to this challenging question?