

# A puzzling pentagon

## Teacher notes

## Why use this resource?

This interactive image offers a whole host of different mathematics to explore. It was created with geometric series in mind, but ideas such as rate of change, similarity and curves of pursuit could also be discussed.

## Possible approach

Once students have been played the animation for a short period of time, ask them to mentally reconstruct what happens in the animation individually. Then in small groups or pairs, ask students to discuss their understanding of the animation. This may lead to some differences and questions arising. When these ideas have been shared, play the animation again. This should help to resolve some of the questions, and support thinking about other questions that are still open for exploration.

## Key questions

- How many regular pentagons can you see?
- What fraction of the shape is shaded in each a different colour?
- Can you find the area of any of the shapes?
- Can you see any sequences in the diagram?
- Can you make any links to geometric series?

## Possible support

Doing the problem [Square spirals](#) first may give more specific ideas to explore. Students can think about whether it is possible to represent the series  $\frac{1}{6} + \frac{1}{36} + \frac{1}{216} + \dots$  and what other series could be represented in a similar way.