

Exploring Patterns HQ

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Preparation and Resources

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Pattern Elements and Translation
Preparation and Resources

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Check Point #3

Growing Patterns
Preparation and Resources

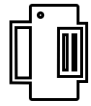
Step 10: Growing Patterns

Step 11: Growing Pattern Task Cards

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Class Challenge

Printing to do



Video to Watch



Digital Activity



Discussion



Engaging with Ideas

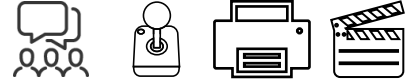


Check Point #1

Pattern Core and Terms

Preparation and Resources

Step 1: Is it a Pattern?



Step One begins with a video demonstration that explores repeating patterns. There is a digital activity to explore together on your screen. Students can sort strips into 'Can see a pattern' or No pattern seen. This tool will continue to generate as many patterns possibilities as you like. Students can then work with a partner to sort and categorise printed strips or use maths equipment such as counters or blocks to create repeating patterns for their friends to continue.

Step 2: Pattern Core and Terms



Step Two begins with a video demonstration that introduces students to pattern cores and terms, supporting them in using mathematical language to describe and discuss patterns. Following the video, students have a set of task card challenges to solve. Solutions for these tasks are provided. Students might like to work with or alongside a partner.

Step 3: Task Card Partner Time



This step draws together the concepts introduced so far. The tasks will challenge students to generate repeating patterns to satisfy set criteria and use the pattern core to solve problems. The given patterns are a little more complex - each term has added details to consider. Template task cards support students in designing their own challenges - modelling them on the given tasks.

Step 4: Pattern Rocket Race



Watch together the video that introduces Pattern Rocket Race and demonstrates how to play it. There is a straightforward way to play, where students drag elements and give them to an appropriate Rocket. There is another way to play with reasoning and problem-solving, leading to a deeper discussion about the game. Students must select or be assigned a challenge card with race-play instructions.

Step 5: Boarding Pass #1



This step evaluates if students can identify the core of repeating patterns, provide the subsequent four terms, and identify hidden terms. Provide each student with a Boarding Pass activity sheet to complete. Once marked, the activity sheet can be returned to students folded as a boarding pass to travel on to Check Point #2. Once finished, students can move on to complete and design more complex pattern challenges using the task cards provided.

Check Point #2

Pattern Elements and Translation

Preparation and Resources

Step 6: Pattern Elements



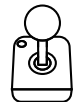
Step 6 has a video demonstration to introduce students to pattern elements. When you have watched and discussed this with your students, there is a selection of task cards for them to complete. These task cards require students to consider and compare the complexity of different pattern cores and create various other cores using a set of elements.

Step 7: Pattern Translation



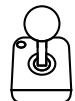
This step starts with a video demonstration to introduce students to pattern translation. There are several moments where it works well to pause the video for students to share ideas or suggest solutions. When they are ready, share the task cards with your students. Several of these include students cutting up and sorting patterns, translating them to see where they do or don't belong. Answers are provided for the task cards.

Step 8: Shaker Pattern Maker



Watch a video demonstration that shows how to play Shaker Pattern Maker. Share with your students the game sheet and place them with a partner for the first few rounds. This game requires a clear understanding of pattern cores and pattern translation. Your class might benefit from playing the first few rounds altogether as a class before moving into smaller groups. There is a game sheet for the tenth-term challenge for students who are ready for a challenge.

Step 9: Boarding Pass #2



Provide each student with a Boarding Pass activity sheet to complete. Once marked, the activity sheet can be returned to students folded as a boarding pass to travel on to Check Point #3.

Once finished, students can play Shaker Pattern Maker in groups on their devices. Encourage the appropriate students to try the tenth-term challenge. There is a QR code for them to scan to access the activity.

Check Point #3

Growing Patterns

Preparation and Resources

Step 10: Growing Patterns



This Step starts with a video demonstration introducing students to growing patterns, explaining how they differ from repeating patterns, and sharing examples. There is a set of task cards for the students to complete. Some of these contain a challenge we have set. For others, students are challenged to create a growing pattern that meets specified criteria and then ask a classmate to check their work.

Step 11: Growing Pattern Task Cards



There is another video that looks at more complex growing patterns.

Once again there are task cards for your students. You might like to assign different tasks to different students depending on their level of understanding.

Students will need maths equipment and coloured pencils to complete these tasks.

Step 12: Boarding Pass #3



Step 12 is the final step before the class challenge. The last boarding pass is included in this lesson, with answers.

When your students have completed this, you might give them time to complete any task cards from previous steps that they haven't attempted or place them in groups to play Pattern Rocket Race or Pattern Shaker Maker.

Class Challenge

Your class will be sent a set of Class Challenges to share and solve.

When, as a class, you have come to an agreement on the answers, send it back to Mission Control.