LESSON PLAN
Year 4: Pattern

🕐 **45 MINS**

General Outcome:
• Solve problems involving patterns and relations.

Specific Outcomes:
• Identify and describe patterns in a chart, table or diagram.
• Represent patterns and relations using charts, tables and diagrams.
• Select appropriate methods and explain methods using mathematical vocabulary.

Introduction 🕐 10 MINS

I am Thinking of a Number!
Display the activity "**I am Thinking of a Number!**" on the interactive whiteboard. Work through the questions whilst questioning the students.
Ask students prompting questions:
- – What operation are you using to determine the number?
- – Is your number increasing or decreasing?
- – If we were to make a pattern what rule could we use?

Pick the Next Number
Display the activity "**Pick the Next Number**" on the interactive whiteboard.
Work through the activity to build on students' knowledge.
Ask students:
- – What rule can be given to this pattern?
- – Is this pattern increasing or decreasing?
- – How do you know?
- – If the pattern was 10 numbers, could we work out what the tenth number would be?
- – How would you describe the pattern?

📚 **ITEMS NEEDED**
- ✔ Mathletics teacher login
- ✔ Interactive whiteboard
- ✔ Mathletics eBook "Odd or Even Apex" worksheet
- ✔ Counters
- ✔ Marian Small worksheets

🔍 **ASSESSMENTS**
- ✔ Have students write out their reflections.
- ✔ Participation
- ✔ Collect and assess Marian Small worksheet.

⚙ **ACCOMMODATIONS/ MODIFICATIONS**
- ✔ Teacher can choose to use the Interactive instead of the handout.
- ✔ Change number to skip count by to determine easier or harder patterns.
- ✔ Encourage students to use hundreds charts or number lines for skip counting and determining pattern rules.

📋 **EXTENSION OF LEARNING**
- ✔ Suggested curriculum activities: Missing Numbers, Missing Values, Venn Diagram 1, Find the Missing Number 1
- ✔ Rainforest Maths, Year 4: Patterns.

Teaching/ Main Activity   🕐 30 MINS

eBooks: Odd or Even Apex

- Play the video "**Odd or Even Apex**" once from beginning to end, allowing students to formulate their own ideas. Play the video again, pausing to ask the prompting questions that are throughout the video. Allow students to work in small groups to investigate and find a pattern rule.
  Ask students:
    - Why is it difficult to find a pattern rule?
    - What steps do we need to take to find a rule?
    - What happens if the base numbers are changed?
  Discuss the strategies and reasoning students use and develop to determine pattern rules.

- Provide students with the "**Odd or Even Apex**" student handout. Have students begin to work through their own patterns and write out their patterning rules. On the interactive whiteboard, the teacher can use the interactive problem with a guided group while others are working on the handouts, or can do a whole-class discussion and begin generating ideas before students do work independently.

- Display the "**Odd or Even Apex**" interactive whiteboard. Enter 3 numbers into the base of the pyramid. Then click on the boxes to reveal connecting numbers. Ask the students come up and share their problem solving process using their recorded work. Children to explain their decisions and how they reached their solution.

- Extension activity/cross-curriculum activity: Ask students to investigate a "What if?" question.
  - What if the pyramid has an extra layer? Does your rule still apply?
  - What if it is a subtracting pyramid? What is the rule?
  - What if you multiply the numbers? What is the rule?

Plenary   🕐 5 MINS

Discussion Questions: Teacher can use his/her discretion and have whole-group or table-group discussions.
Questions to discuss: Where can you see number patterns in real life? How do all the patterns relate that you did today? Was the hundreds chart or the number pyramid an easier way to see a pattern? What did you do when you were trying to determine a pattern rule?