

Topic: Algebra : Sequences (nth term), Expanding brackets, Factorizing, Area.

Group: Year 10 (Predicted grades 5-Bs, 16-Cs 2-Ds)

Date/Period: June 2010 Lesson length - 75 minutes

Learning Intentions: *By the end of the lesson you will.....*

ALL

- Will be able to substitute numbers into algebraic expressions and record the results in a table.
- Create connections between algebraic expressions and word statements.

MOST

- Will be able to expand expressions with one or two brackets.
- Factorize expressions into one or two brackets.
- Find the nth term for a sequence of numbers.

SOME

- Will be able to make connections between nth term, factorizing and expanding brackets.
- Will be able to link expanding brackets to the area of rectangles

Key Words

nth term
Expand
Brackets
Simplify
Factorise
Area

Card set B

Card set B

Card set B

Card set A

Card set A

Card set A

Card set C

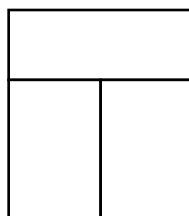
Card set C

Card set C

Card set D

Card set D

Card set D



Teacher's table where probing questions are asked to the groups of students, as part of the carousel approach.

Starter (10 Minutes)

- Teacher uses interactive white board, learners use mini A4 white boards and pens.
- Flipchart 1** - Evaluate $4n + 12$ when $n = 3$. Also write down anything and everything you know about $2n + 6$.
- Flipchart 2** - Evaluate the following expression when $n = 5$: $2(n + 3)$ $(n + 6)^2$ $3n^2$
Probing question, Doesn't $3n^2 = 144$ when $n = 4$?

Main Activity

- Flipchart 3** Introduce card set A and explain the task. All groups are initially given card set A

Carousel approach

	1 st 10 mins	2 nd 10 mins	3 rd 10 mins	4 th 10 mins	5 th 10 mins
1 st group of 4-6 learners	Match set A Start on table A	Match set A & B	Match set A & B & C	Match set A & B & C & D	Teacher table
2 nd group of 4-6 learners	Match set A&B. Start on table B	Match set A&B&C	Match set A&B&C&D	Teacher table	Continue match set A & B & C & D
3 rd group of 4-6 learners	Match set A&C. Start on table C	Match set A&C&D	Teacher table	Continue to match sets A & C & D	Match set A&C&D&B
4 th group of 4-6 learners	Match set A&D. Start on table D	Teacher table	Continue to match sets A & D	Match set A & D & B	Match set A & D & B & D

Practicalities

- Students do not cut up the cards. Laminate the A4 sheets.
- On table B there are 4 copies of card set B, on table C there are 4 copies of card set C, on table D there are 4 copies of card set D.
- As students move desks they take one laminated card set with them.
- Students write down what they have matched in a booklet of 5 blank A4 sheets of paper stapled together.
- Note every time students match something new, they must write it on a new sheet. New match = New Sheet.

1. Build on the knowledge learners bring to lessons:

This is a revision lesson. Starter students practice substituting values into algebraic expressions. The students have been taught all the topics before

2. Expose and discuss misconceptions

Included in the card sets are examples of common misconceptions.

E.g. $3n^2 = (3n)^2$ $(n + 6)^2 = n^2 + 36$ $2(3n - 1) = 6n - 1$

3. Develop effective questioning

Probing questions are asked at the teacher table.

In whole class discussions use the Pose, pause, bounce, bounce questioning strategy i.e. ask a question, allow students time to think, get a learner's response then go round the room asking other learners to comment on what has just been said.

4. Use cooperative small group work

Students are working in pairs for the main activity and then come together as a group of six at the teacher table sharing their ideas and understanding.

5. Emphasise methods rather than answers

Students will be required to explain how they got their answer and revise methods to reach an answer.

6. Use rich collaborative tasks.

The matching card activity allows students to work at different levels. It is an interesting way to revise and challenge students' thinking.

7. Create connections between Mathematical topics

The topics of area, factorising, expanding brackets and nth term are covered in one lesson.

8. Use technology in appropriate ways.

The interactive whiteboard allows for a visually stimulating starter and plenary.

Plenary (10 mins)

- Using the A4 booklets students to write and answer the following sentences at the back of the
- Something I am confident with is
- Something I need to work on is.....
- Share as a class what they learnt.
- Students to use the matching cards from $6n - 2$ to generate the nth term for the following sequence , 8, 14, 20 , 26