**Subject:** Maths **Unit/Module:** FM  **Lesson title:** Proof **Teacher:** G Colman

**Active Learning**

* An incorrect proof; 1 = 2. The importance of avoiding division by zero.

**Extension:**

**Who:**

**How is learning checked?** Ability to carry out algorithm, recording of method.

**Active Learning**

* Groups to board to explain differing types of proof to other groups.
* Groups tackle other types of proof.

**Extension:** More able students to explain harder proofs to others

**Who:** Emily, Adamya, Curtis, Ben Scott, Jamie, Jordan

**How is learning checked?** Presentations by each group, questions asked by other groups, clarity of explanations.

**Active Learning**

Pair & share;

* Give out envelopes of tasks to groups of students.
* Students work through tasks in groups or pairs.
* Prepare to explain to class.

Ipads available for further investigation as necessary.

**Extension:** Differentiated by task, more able students get harder tasks. Lots of extension within tasks also. If complete one set of tasks, move onto another.

**Who:** Emily, Adamya, Curtis, Ben Scott, Jamie, Jordan

**How is learning checked?** Walk round and assess, check progress through tasks, questions asked, conversations and reasoning taking place.

**Active Learning**

Starter:

Question from brilliant.org on the board.

* Intro to mathematical vs scientific proof
* Intro to types of proof

**Extension:**

**Who:**

**How is learning checked?** Student responses, questions, reactions.

**Homework:** continue / finish exercises

**Resources:**

* Pythagoras puzzles
* Reading books for reference
* Envelopes with info & questions sheets.

Opportunities for:

|  |  |
| --- | --- |
| Interleaving – implicit (but clearly referred to) |  |
| Interleaving – explicit (checkup a previous topic) | FP1 series |
| Threshold Concepts | Types of mathematical proof |
| Screencasting | Student expositions |
| Career exploration | Logic & deduction, forensic science. |
| Equality & diversity | Cultural & classical mathematical proof. |

**Key prior knowledge:** FP1 series, sums of integers, quadratics.

**How it will be activated:** See learning activity 2.

Various links in main plan.

**What *exactly* will students know and be able to do?**

**C:** Be able to state the difference between scientific proof and mathematical proof. Be able to use direct proof to prove algebraic identities.

**A:** Be able to use proof by induction to prove mathematical statements.

**The session focus is on:** Proof

**Challenge People:** -