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| **Drop Down Day** | | **Mathematics Lesson (year 7)** | **Topic: Djenne Magic Squares** |
| **Key Learning Objective(s):**  **(Non- calculator lesson)**   * Identify magic squares * Identify patterns in magic squares * Solve magic square problems * Create magic squares using algebra * Rotate and reflect magic squares | | | |
| Resources:  Djenne magic squares presentation:  [https://1drv.ms/p/s!AsYwSwoGOxWzoU4xIZrM1INsFio4?e=m8U75B](about:blank)  Magic squares worksheet:  [https://1drv.ms/w/s!AsYwSwoGOxWzoUAEFF-qKAmNeysA?e=Su0zpS](about:blank)  Magic square order 4 worksheet:  [https://1drv.ms/w/s!AsYwSwoGOxWzoUQwMZqkjz1inrsO?e=RMi8Oo](about:blank)  Making magic squares worksheet 1 & 2:  [https://1drv.ms/w/s!AsYwSwoGOxWzoUnR9rbLBqro-eKC?e=L0UQUA](about:blank)  Magic squares development:  [https://1drv.ms/b/s!AsYwSwoGOxWzoVbxHiWeDk0x6WAn](about:blank)  Making magic squares (Teacher solutions):  [https://1drv.ms/w/s!AsYwSwoGOxWzoU2l-9rwTO1wz3pR?e=OJzl1c](about:blank) | | | |
| **Suggested timings:**  10 mins  10 mins  5 mins  15 – 20 mins  5 mins | Lesson sequence:  Present magic square in slides and discuss question responses as a class. Present and discuss historical context and introduce Djenne in West Africa.  Student activity 1:  Calculate magic numbers for order 3, order 4 and order 5 magic square.  Review and discuss patterns noticed.  Student activity 2:  Complete Magic squares worksheet. Ext: Magic square order 4 worksheet  Teacher led activity:  Use order 3 magic square formula to create a magic square. Ext: Magic square challenge of next slide (negatives and decimals). Guide class through solution. Review and discuss.  Student activity 4:  Complete Making a magic square 1 or Making a magic square 2 worksheet. (Sheet 2 contains reflections and rotations of magic squares). Teacher solutions available.  Students not ready for algebraic representation could try Magic squares development activity.  Play video ‘Meet Muhammad ibn Muhammad’ about 18th century pioneering West African mathematician  End of lesson | | |