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|  | **Swavesey Village College****Lesson Planning Form****2010-11**  |
| **Staff: Cecilia Freer** | **Class: 7H** | **Date: 17 March 2011** | **Period /Time: 1****9.15 – 10.15** |
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| **Course and lesson context:**  |
| This is the second lesson (the first was in October) to be observed by researched from the University of Sussex on the implementation of group-work and complex instruction techniques. They are following teachers at SVC working with year 7 and 8 classes. I was the teacher for this group up until Christmas, but due to staffing and timetable changes no longer teach them, but am doing so for this lesson for continuity of teacher within the research project.One lesson a week for year 7 is focused on numeracy, and this lesson covers objectives concerning properties of numbers from the whole number part of the scheme of work. 7H are a mixed ability group, with current levels ranging from 3 to 6. |
| **Learning Objectives** (Use **HOTS** to show progression through the lesson)1. To **apply** your knowledge of multiplication and doubling to **develop** strategies to **solve** harder multiplication problems mentally
2. To **apply** knowledge of multiples and division
3. To **analyse** new information and **investigate** digital roots
4. To make **conjectures** about patterns
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| **Learning Outcomes (**What the students will do to show what they have learnt], refer to different groups of learners)1.  **Everyone** will… practise multiplying sets of numbers, calculate digital roots of numbers and notice patterns emerging in the table so then predict and test for how patterns will continue; and identify multiples and square numbers2.  **Most** will…extend their multiplication through recall by use of doubling; .recognise that multiples of 9 all have the same digital root and that this provides a test for divisibility and make links to multiples of 3; identify symmetrical patterns in the square and explore geometrical patterns that can be created from it, again identifying symmetries.3.  **Some** will.. Discover patterns for particular types of numbers such as square, cube, powers of 2, triangular numbers and factorials and begin to explain why these have the digital roots found. |
| SEN StudentsLS – at SA | FSM (Check on E portal)2 | Looked After Children N/AEAL: N/A | Seating Plan is available showing:Targets, G&T/FSM/SEN |
| **Learning and Teaching Activities:** |
| **Starter/Settler/Hook (10 mins)**Students to complete the multiplication grid given (slide 1), extension here to multiplying numbers beyond standard recall by using doubling strategies.Students to share methods used. **Cc opportunities for rewards here** |
| **Lesson Structure showing development activities**1.  (Slide 2) Teacher Question / explanation – what is the digital root of a number. Assessing for prior knowledge of students here. Key question if students show familiarity – What can this be used for? (looking for knowledge of tests of divisibility for 3 & 9) **(5 mins).** Demonstrate how to find a digital root as this will form an essential part of the lesson.2.  Group Investigation (Slides 3 – 8) Students to work in table groups of 3 or 4 (they are grouped so that each table has a mix of students both gender and ability-wise). They will adopt roles using the laminated role cards (with which they are familiar, having used these when working in groups last term) allocated to help promote group harmony and ensure all group members contribute to the task. Students will work on large tasks sheets to create a group product for their investigation. They need to complete a Vedic Square (digital roots for a 9 x 9 multiplication grid). The group task has prompts for students to investigate patterns with digital roots of particular types of numbers (multiples of 3, 9, square, cube, triangular, prime, powers of 2 and factorial). Student will be encouraged to try to explain their observations or alternatively to look at the symmetry and geometrical patterns that can be formed from the square. **(30 mins)** |
| **Plenary** **(15 mins)** (Restate Learning Objectives, use questioning techniques to target groups of learners)Review the objectives. What maths has been used? Group to take it in turns to share their findings and to compare with those of other groups. The expectation is that anyone in the group could be asked to feedback, so all need to be able to explain the group’s investigation.Key questions – what link is there to division? Ensure students connect the tests for divisibility of 3 & 9 with digital roots. What patterns were identified? Which of these can they offer explanation for? **Cc opportunities for rewards here** |
| **Differentiation*** This is designed to be a task with scope for exploration into different areas to allow all students to engage and access at various levels, as they are a mixed ability group. There are extension and support prompts to provide challenge and help.
* Multiplication grids available to students unable to recall all necessary facts, to allow them to access higher order skills beyond recall of analysis and investigation.
* Prompt questions to extent and support group activity.
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| **How are these objectives assessed?** (Refer to any AfL strategies used) Including questioning, peer and self assessment and any oral or written feedbackStarter – teacher circulation / students solutions recorded and student oral feedbackGroup Task – individual and group questioning during the task. Group’s written work on task sheets and feedback / questioning during plenary and peer assessment during this process | **Links to Home Learning?**Formal homework task is scheduled for the current module topic via their normal class teacher (L Hill). However, interested students could further research the Vedic Square and its properties at home. | **How will the TA support student progress?**N/A – There is no TA support. |

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| Tick against different Learning Styleskinaesthetic Kinaestheticear 3Auditoryhm00373_ Visual Y Y YAre there opportunities for: Individual work **Y** Paired work **Y** Group work **Y** Whole class work **Y** |
| Personal Checklist PACE PRAISE PROGRESSION* Are the Learning Objectives challenging and displayed, shared and reviewed ?
* Are students engaged and enthusiastic?
* Is there suitable pace to the lesson?
* How will Curriculum Credits be awarded?
* Are there high expectations for all?
* Do students know their current level and how to improve?
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