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THE
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UNIVERSITY OF
BIRMINGHAM

ITY TEACHING HONESTY RESPECT RESILIENCE CURIC
E CHARACTER 
RIT THROUGH SUBJECTS MOTIVATION FOCUS OPTIM

MATHEMATICS

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 WWW.JUBILEECENTRE.AC.UK

Teaching Character Through Subjects – Mathematics Suite 2 Key Information

Teacher	Hurpal S Samra	School	Nishkam High School
Overview			
Curriculum Area	Maths		
Subject Focus	<p>Statistics – Collecting, analysing and evaluating data.</p> <p>This project can accommodate any given year as the differentiation and the level of discussions will increase with groups in KS4.</p>		
Identified Key Character Qualities	<p>Neighbourliness – Civic domains Community Spirit – Civic domain Focus – Intellectual domain</p>		
Character Focus	<p>Through the process of filling in their diary students will be assessing their own actions using the caterpillar process where possible or at least accessing some of the strands to help them develop their own knowledge of good character. The caterpillar process will be the form of evaluation and synthesis of their own actions over the course of the 5 lessons.</p> <p>Students will write an evaluation at the end with suggestions of how they wish to improve their own actions to help to build a better character over the course of their life.</p>		
Differentiation	<p>Some lessons vary in outcome i.e. students being able to draw bar chart or drawing pie charts. Other lessons differ through questioning understanding of mathematical content. Differentiation can also be achieved when questioning students based on their character development during discussions and group work.</p>		
Adaptability	<p>The lessons are designed so that lessons 2 and 3 will merge together and lesson 4 and 5. This allows teachers to accommodate the timing of lessons and vary the activities providing for the level of abilities of the group.</p>		
Affect on School Priorities	<p>I have noticed changed based on the objectives that were set out to achieve from various types of students. Some improved their behavior and some had improved their focus and attention within lessons.</p> <p>The main improvements seem to derive from the assessment of students' time used. Adding deep reflection and discussions led to suggestions of improvement over a period of time.</p>		
Things That Worked Well	<p>Students' engagement with the caterpillar process as they all tried to decipher each heading with the meanings/definitions.</p>		

	<p>The flow and flexibility of lessons 2 -> 3 and 4-> 5 as this gave more scope for development in the mathematical elements i.e. pie charts as fractions and degrees needed to be introduced.</p> <p>Students being self-reflective of the virtues as they progressed through the lessons and plenaries becoming more meaningful.</p>
Things That Might Be Improved	More mathematical content in lesson one. Lesson one was more focused on Newton's life
Lessons	
Subject Focus	<p>Lesson One: The life and struggles of Mathematician Isaac Newton</p> <p>Lesson Two: Organising data, time, fractions and tables</p> <p>Lesson Three: Organising data, time, fractions and tables</p> <p>Lesson Four: Pie charts/bar charts and percentages</p> <p>Lesson Five: Evaluation of data</p>
Character Focus	<p>Lesson One: Introduction of caterpillar process and the virtues</p> <p>Lesson Two: Assessing community spirit and neighbourliness</p> <p>Lesson Three: Assessing community spirit and neighbourliness</p> <p>Lesson Four: Assessing focus</p> <p>Lesson Five: Self evaluating the 3 virtues</p>
Lesson Activities	<p>Lesson One: Card sort – intended impact is to access the caterpillar process themselves allowing them to appreciate the content (headings, meanings and order).</p> <p>Isaac Newton's life – Applying characters virtues to the life of a mathematician who struggled in various ways.</p> <p>2 weekend homework is the basis of students being able to self-reflect on their character</p>
	<p>Lesson Two and three</p> <ul style="list-style-type: none"> • Maths - Converting approximate time spent in percentages • Key focus % • Character - Key character Listening to the scenario and assessing how this is impacting on their character. Encouraging students to regularly reflect upon their character virtues of neighbourliness and community spirit and begin to brainstorm of how they could improve their contribution to the community.

	<ul style="list-style-type: none"> • Maths – Organising the activities into areas of headings using a table to organise qualitative data • Focus on the notice and look part of the caterpillar for their current data produced. <p>Lesson Four and Five:</p> <ul style="list-style-type: none"> • Constructing data into a visual aid bar charts and pie charts using the % that students have. • An evaluation of the process. • How has the caterpillar process helped them assess their characteristics? • What things have you changed over the course of the 5 lessons? • What characteristics will you like to change in the near future, medium term and long term? <p>This is to provide an overall reflection of how they are currently building their character, how their current actions are or will impact their future and encouraging students to now for tomorrow.</p>
<p>Notes on Differentiation and Adaptability</p>	<p>Lesson One: Using blooms taxonomy differentiate questioning during and at the end of the lesson.</p> <p>For card sort provide assistance those students that require more support or make groups of mixed ability.</p> <p>Lesson Two and Three: Provide visual printout of the worked example from the PowerPoint.</p> <p>Use a highlighter to identify the specific title headings when organising the data.</p> <p>Lesson Four and Five: Provide printout of how to convert time for pie chart degrees.</p> <p>Allow low ability students to draw bar charts instead of pie charts.</p> <p>For evaluation provide a guided list of headings to prompt the thought process for students with difficulty.</p>
<p>Other Points Worth Noting</p>	<p>The 2 weekend homework is important and must be checked on the Monday or first lesson back as this forms the basics of the project.</p>

A printout from the website stated on the PowerPoint on slide 6 should be printed out for ease of reading for different reading age levels.

Planning of your own level of questioning based on your group would be advisable.

If the first lesson is introduced before the two weekend homework then there will be at least a two week gap. The teacher may want to introduce the 2 weekend homework two prior to the first lesson or may focus 4 consecutive days dependent upon time constraints.