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

# MATHEMATICS

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NISHKAM HIGH SCHOOL, BIRMINGHAM

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## Teaching Character Through Subjects - Mathematics Suite 3 Key Information

<b>Teacher</b>	Tanveer Sehejpal	<b>School</b>	Nishkam High School
<b>Overview</b>			
<b>Curriculum Area</b>	Mathematics		
<b>Subject Focus</b>	The topic was based on the data handling topic. This is all part of the national curriculum. The topic could be made relevant to all year groups.		
<b>Identified Key Character Qualities</b>	I worked on tolerance and integrity. These come from the moral domain		
<b>Character Focus</b>	<p>Pupils were able to look and discuss about many different aspects of countries around the globe. I felt that this gave pupils a chance to be opinionated and develop their opinions and understanding further. The caterpillar helped as it gave pupils and opportunity to reflect on what they are like as individual personalities, and it also helped them to see how they could improve their personal qualities.</p> <p>The sheets that pupils completed at start of lesson1 and at the end of the lesson 5; showed an increase in their understanding and also their personality.</p>		
<b>Differentiation</b>	<p>The lessons were delivered to a very able top set of pupils. So there was enough challenge there for all pupils.</p> <p>The lessons and data could be made simpler for weaker pupils.</p>		
<b>Adaptability</b>	<p>The lessons can be adapted easily, as for weaker groups the teacher may need to explain a lot of the moral vocabulary and also explain a lot of the mathematics that is involved. Brighter pupils should be able to link in knowledge and understanding from other subjects. Many of my pupils were able to give additional information to other pupils as they were more aware of incidents that were taking place</p>		
<b>Affect on School Priorities</b>	<p>Pupils are more aware of recent events that have been taking place around the world. They are more sensitive when talking about recent world events and try to make sure that they do not offend others or different races or even pupils from a poorer background.</p>		
<b>Things That Worked Well</b>	<p>Mathematically, I was pleased with how pupils used and analysed the data. They were very good at criticizing and accepting the data where necessary. They were able to link their conclusions with the character language that we were using in the lessons.</p> <p>I was very happy with the way that pupils began to show more integrity towards other countries and were starting to realise how they can build this into their own personalities.</p> <p>Pupils at the start where very unaware if they were tolerant or</p>		

	<p>showed integrity; by the end of the five lessons they were better at self analyzing themselves, and some where even able to say things like 'I'm not very a very tolerant person, this is something that I need to work on'</p>
<b>Things That Might Be Improved</b>	<p>Mathematically some lessons could have been more challenging to stretch the pupils but on the contrary this gave them time to reflect on the Caterpillar and also begin to use the character education language that was introduced.</p> <p>I felt that five lessons weren't enough to build the pupils understanding and also to capture it.</p>
<b>Lessons</b>	
<b>Subject Focus</b>	<p>Lesson One: Looking at bar charts and analyzing them</p> <p>Lesson Two and Three: The data handling cycle, collecting and giving information. Proving or disproving hypothesis</p> <p>Lesson Four: Questionnaires. Pros and cons to them. Building own questionnaire, collecting information and displaying this.</p> <p>Lesson Five: Analysis of all the data collected and review of everything that we have learnt</p>
<b>Character Focus</b>	<p>Lesson One: Describe what tolerance and integrity mean. Pupils had to score themselves. Introduction of the caterpillar model. Pupils looking at the Notice part of the model and began to self-evaluate.</p> <p>Lesson Two: Pupils looking at the stop part and again had to self evaluate where they were. Pupils in pairs had to describe what values and features would be important for their country to be happy and why.</p> <p>Lesson Three: The hypothesis had some link with the values and pupils went and researched and reflected on this. Some pupils looked at whether the richest countries gave more aid than poorer countries; they actually found the opposite to be true. Pupils as a class shared ideas and collaborated what is important for people Pupils looked at the listen part of the caterpillar.</p> <p>Lesson Four: Pupils listed all the important things for a good and happy country as a result of their research from the previous lessons. They were careful in the way that they asked their questions as they did not want to offend anyone.</p>

	<p><b>Lesson Five:</b> An overall analysis of the caterpillar model. Pupils had to explain what their understanding of the words tolerance and integrity is. They also scored themselves and most pupils showed development and understanding.</p>
<p><b>Lesson Activities</b></p>	<p><b>Lesson One:</b> Pupils had to fill out a sheet about what the words tolerance and integrity meant, they also had to score themselves from 1 - 10. The main activity for this lesson is for pupils to draw a bar chart about how many Syrian refugees different countries are taking on. The refugee crises over summer was discussed. Pupils spoke about the advantages and disadvantages of this. As this is quite recent news, most pupils had already had exposure to the issue and many pupils had opinions. Pupils then had to write about what they would do if they had their own country. Most agreed that taking on refugees would be the correct thing to do for them, but some pupils were also able to analyse the implications on other people in the country. Pupils were shown the picture of the Syrian boy that drowned over summer.</p>
	<p><b>Lesson Two:</b> Diamond 9 activity- pupils had to rank and discuss what was most important and what was least important for people to be happy. This was discussed afterwards, and as a result of the discussion some pupils did move around their rankings. Data cycle was introduced and how it can be used to test various hypotheses. Pupils were given some hypothesis to choose from but many opted to create their own. I circulated and checked that all were okay and that they would be able to find information easily. Pupils began to list the information that they would need to prove or disprove their hypothesis.</p>
	<p><b>Lesson Three:</b> Pupils were taken down to the computer room to collect data for their projects. I guided them through this. For the last 10 minutes of the lesson, pupils came up to the classroom and began to plan their posters and make summarize what they generally found out about their hypothesis.</p>
	<p><b>Lesson Four:</b> Pupils looked at questionnaires and designed their own questionnaires to find out what other pupils thought would be characteristics of the most perfect country. We spoke about the values at our school, and also discussed these so some pupils did base their questions around the school ethos. We spoke about the wording of the questions and how they should show integrity and not to be offensive to anyone else. At the end of the lesson, pupils were given information sheets</p>

	<p>about various countries and the happiness index. Pupils then had to make decisions about where they would live and why, some pupils followed the happiness index, others decided to pick countries that they had learnt about.</p> <p><b>Lesson Five:</b>  We discussed as a class all of the different things that pupils had learnt over the week and what they had thought about certain countries in the world. Some were shocked at the crime rates in certain countries whereas others were optimistic about what they learnt about countries.  Pupils had to write a report about all of their findings, they also had to mention words in relationship to character values, especially tolerance and integrity. Pupils wrote from <math>\frac{3}{4}</math> of a page to a full page.  Pupils were given time to reflect on their report. Pupils then filled out the same sheet about what the words tolerance and integrity meant, they also had to score themselves from 1 -10. Pupils were then given back their sheet from lesson 1 to see the difference in them now. Pupils were not asked to share the findings or comparisons between both the sheets but just simply reflect on them.</p>
	<p><b>Lesson One:</b>  Use less data and simpler bar chart</p> <p><b>Lesson Two and three:</b>  Give pupils a hypothesis and the data that they will need to draw their conclusions. They may also be guided on the type of graph that they may be asked to draw.</p> <p><b>Lesson Four:</b>  Build questionnaire as a class and discuss with pupils how the questions should be phrased and how information should be collected.</p> <p><b>Lesson Five:</b>  Some sentence starters to help with their written report</p>
<p><b>Other Points Worth Noting</b></p>	<p>I was able to use a double lesson for lesson 2 and lesson 3. The first part was in the classroom and for the second part I took them down to the ICT suite for them to research their information.  Pupils also had a weekend to complete their posters, some also decided to make PowerPoint presentations or posters using ICT.  I used the refugee crisis that took place over the holidays, pupils were opinionated about this; some were positive and some were very negative.</p>