Year 5 Handling Data 1 Discovering my solar system (Core)

Timing 4 sessions of approximately 40 minutes	**Children will** • Collect data about planets in our solar system and create Top Trump cards (builds on year 2 activity) • Create a database in 2Investigate, Google sheets or Survey in office 365 • Answer questions by Interrogating each other's databases • Compare two different planet databases • (Help others to use a database to find out information.)
e-safety links I can discuss the importance of choosing an age-appropriate website, app or game.	**Objectives Handling Data** • I can use a database (or spreadsheet) to collect and record data. • I can choose an appropriate tool to help me collect data. • I can present data in an appropriate way. • I can search a database using different operators to refine my search. • I can talk about mistakes in data and suggest how it could be checked.
Links to other learning **Computing:** **Technology in our Lives 2** (reliability of information) **Science:** Investigating Earth and Space	
Resources Google sheets Google Forms Office 365 Excel Microsoft Forms 2Investigate (software or in PurpleMash)	**Preparation** • Check children have understanding of data and information. Use Y4 Data and Information Powerpoint if they don't have this prior learning. • Short cuts or QR codes set up DKFindOut Solar System http://space-facts.com/ and https://solarsystem.nasa.gov/planets/overview/ • Additional information about planets science-resources.co.uk http://www.planetsforkids.org/ • Planets database PurpleMash/2Investigage • Print out sets of blank Top Trump cards or use a word template for children to create their own. • Copy files for GSuite or Microsoft for Education Google Education: Copy files • Planet spreadsheet • Planet form Check knowledge of sort and filter Office 365 Education: Copy files • Planet spreadsheet • Image of Planet form Check knowledge of sort and filter

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	Expectations	Activity	Success Criteria
1	I can present data in an appropriate way	**Explore a database structure** • Ask class to explore DKFindout! Information about The Solar System – about 5 minutes. • How do they find information on each of the planets and objects? One click on the objects gives them basic information. A second click on the name of the object gives them more information. • What is the same/different about the information for each object? • Split class into two groups to explore one of these sites. Children to explore their site in pairs: ○ **https://space-facts.com** *Click on heading for each planet to see information* ○ **https://solarsystem.nasa.gov/planets/overview/** for more confident readers (better in Chrome browser on windows devices) *Click on each planet to see information* • How do they find information on each of the planets? • What is the same/different about the information for each planet? *Guide children to see there are common 'categories' for the information for each planet.* • How does this information differ from the DKFind out! site? *The same information is presented for each planet with these two online databases.* • Put one pair from each group together to form a four. Ask them to explain the information they found for the planets. Guide children to recognise the 'categories'. What list of categories can they make together from their exploration of the two sites? • Tell the children that these categories are attributes. • Ask the children for an attribute of the planets. This can be a quick collect of	Gold: Can I identify appropriate attributes for Top Trump game? Silver: Can I identify the data I will need to complete the attributes? Bronze: Can I play a Top Trump game?

		words around the class and will include: ○ Length of years ○ Distance from Sun ○ Name sake ○ Moons ○ Diameter ○ Mass ○ Orbit distance ○ Orbit period ○ Surface temperature ○ First recorded ○ Recorded by • Give each group of four, templates to make a Top Trump game. The template has space for six attributes, but you may want to agree to use less depending on time. Each member of the group makes two or more cards, again depending on time. Ask children which of the attributes will be most suitable for Top Trumps – Do they recognise the need to be able to compare values to play the game? • Pairs play Top Trump game against each other - using the term attribute eg 'The attribute of Distance from Sun is …'.	
2	**Handling Data** I can search a database using different operators to refine my search. .	**Interrogate a database** • Tell the children we are going to use a database to find out information. Ask children what the difference is between data and information. (You may want to use Y4 Data and Information presentation to remind them.) **Users of PurpleMash:** • Direct children to work in pairs (or larger group depending on the number of devices) to open **PurpleMash/2Investigate Planets** Children used this if they did Year 4 Handling Data 3. Session 2 has details of functionality of 2Investigate.	Gold: Can I ask and answer complex questions using a database? Silver: Can I use a database to answer complex questions? Bronze: Can I use a database to answer simple questions?

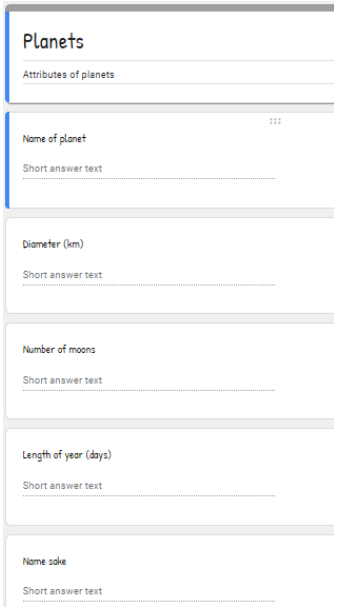
- Which attributes are used for each record?
- What can the pairs discover? What questions could they investigate? Model asking a question if the children need this additional guidance.
- Children should be using **Find** icon. Can they answer a simple question? Can they ask a more complex question that includes using AND / OR and different operators?

- Ask each pair to write a question. Collect questions and then pass them out to different pairs. You can check which questions are appropriate for which pairs of learners. **OR** use PurpleMash Planets quiz.

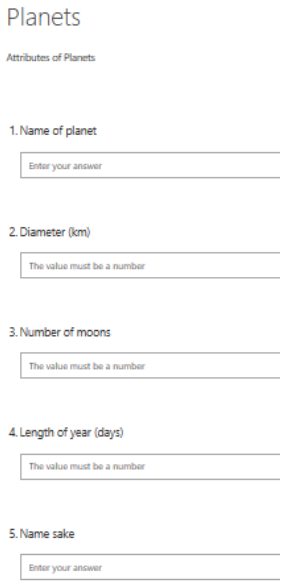
Users of GSuite or Office 365:

- Look at the form that is used to collect the information about a planet.

Google



Microsoft



		• Model adding a planet(s) for them to see how the form of the database is used. Timing allowing, you could add the data for all planets or do one or two and then view responses as a spreadsheet. Which attributes are used for each field on the form? Which attributes are used as column headers in the spreadsheet? Do children recognise that the technology pulls the data added into the format of a spreadsheet?
		• Share the spreadsheet you have made **OR** the pre-prepared spreadsheet so that children can access on their own devices.
		• How can you sort the columns to show an answer to a questions?
		  ○ **Google Sheet** click on the arrow next to the column letter to sort according to that attribute, eg which planet has the most moons?
		  ○ **Office Excel** click on the arrow next to the column heading or use sort and filter icon. Custom sort to answer a more complex question using more than one attribute eg Which is the largest planet with more than x moons?
		• **Plenary**
		What did you find out from the database? What did you need to understand about the software? What is a database?	

3 & 4	**Handling Data**
	
	I can use a database (or spreadsheet) to collect and record data.
	
	I can present data in an appropriate way.
		Scientist challenge
		• A group of scientists are considering which planet could be used to collect resources needed by earth in the future. What can you do to make data available to them to compare the planets in our solar system? They need as much information as possible but only if the data provides a comparison with other planets.
		• Plan the process to meet the challenge:
		  ○ What could the outcome look like?
		  ○ What tools will you use? (2Investigate / Google Forms and Sheets / Microsoft
			Gold: Can I make and check the contents of a database and present it for use by others?
			
			Silver: Can I make a database to compare information?
			
			Bronze: Can I add information to a database?
			
			Gold: Can I describe how a database

	I can talk about mistakes in data and suggest how it could be checked.	Forms and Excel ○ What steps will you need to go through? What is the algorithm? • Ask the children to jot down the order of the tasks they will need to do. Get the children to RAG the list to identify any further knowledge or skills they need. You may need to guide children to use their learning so far to make use of a database, a form or a spreadsheet to achieve what they want. They may need time and support to gain the skills to make their own. • **For children using 2Investigate:** Watch the 'making your own database' video in 2Investigate. • **For children planning to use a spreadsheet** (depending on the confidence level): ○ Remind the children of adding information to a Form and how the responses can be viewed as a spreadsheet **OR** create a form together and get different pairs to respond for one of the planets, or other bodies in the solar system if you need more options to be added. ○ Pairs can then access the responses as a spreadsheet and amend the spreadsheet to show the data they want. ○ Children can be given a copy of the Form to edit and add information for GSuite or Microsoft – see preparation section above. **OR** children can make their own Form. ○ Optional: Add challenge by asking them to add an image of the planets to the spreadsheet – remind them of the need to check copyright for any images they download. Can children make graphs to compare any of the data for the planets? • How will they spot if there are any mistakes in their data? • Give the children time to make any improvements or to correct any mistakes they spot in their database. • Ask children to present their outcome to the rest of the class. The class to role	works and the purpose of a database? Silver: Can I talk about the purpose of a database? Bronze: Can I help others to use a database?

		play scientists to use the database/spreadsheet to compare the data about planets.	