PHYSMATH

4:Interpreting charts

LEARNING OUTCOMES

Level 4
- Record data in a table

Level 5
- Interpret the data in a pie chart and bar chart

Level 6
- Calculate the angles required to draw a pie chart

PENDULUM EXPERIMENT

- You are going to measure how long it takes for different length pendulums to swing
- We will record our data in a table
- A table is a type of **chart**

Length ( )	1st Time for 1 swing ( )	2nd Time for 1 swing ( )	3rd Time for 1 swing ( )	Average Time for 1 swing ( )

5

KEY SKILLS FOR TABLES!

- Tables should be drawn neatly with pencil and ruler
- All headings must have a unit
- All numbers in a column must be give to equal decimal places

Use the scoring grid below to award a mark out of 8 for their table.

Criteria	Description	Check
What goes where	I have recorded the independent variable in the left hand column	
What does where	I have recorded the dependent variable in the middle column	
What does where	I have a column for any numbers worked out on the right hand side of my table	
Title	My table has a suitable title, that tells you what the data in the table is about	
Headings	Each column in my table has a suitable heading	
Units	I have added correct units to my dependent and independent columns (i.e. seconds, cm)	
Level of precision	All data (including any averages) are recorded to the same level of precision (i.e. to 1 decimal place)	
Presentation	I have used a pencil and ruler to draw my table	

Jeff the Builder - Making Small Data Tables

Jeff is a home builder's helper. At the end of the work day Jeff needs to walk through the entire home and find all the loose left over nuts, bolts, nails, screws, and fasteners he can find in the house. He everyday he wrote down on a piece of note paper how many he found. You will see the notes below.

Monday

Fasteners – 52
Nails - 49
Screws – 128
Bolts – 14
Nuts - 8

Tuesday

Nails – 96
Bolts – 21
Fasteners – 68
Nuts – 18
Screws – 274

Wednesday

Nuts – 23
Screws – 598
Bolts – 8
Nails - 24
Fasteners – 69

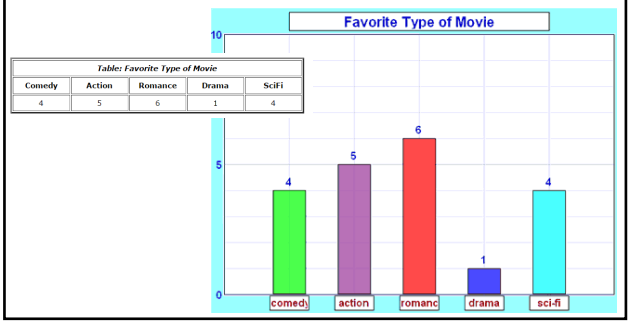
Thursday

Screws – 274
Fasteners – 91
Nuts – 18
Nails - 674
Bolts – 32

Organize the data on the notes into a data table for Jeff's Boss.

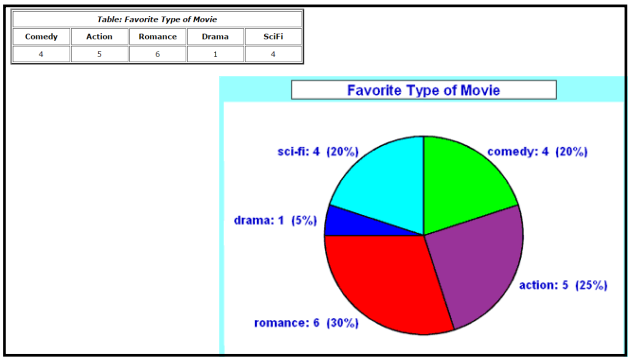
OTHER TYPES OF CHARTS

- You could display Jeff's data in a chart that would be easier to look at quickly
- A bar chart!

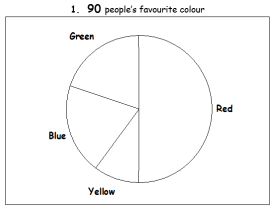


DRAWING BAR CHARTS

- Level 4: Plot a bar chart of Monday's data
  - Put the different types of materials along the bottom (x-axis)
  - Put the number of them up the side! (y-axis)
- Level 5: Plot a bar chart for the whole week
  - Put the different types of materials along the bottom (x-axis)
  - Put the total number of each material up the side (y-axis)
- Level 6: Plot a bar chart of your choice
  - What could you have on the x and y axis?

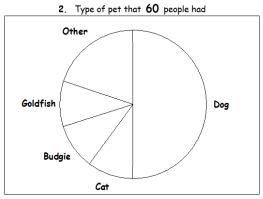


1. **90** people's favourite colour



Favourite colour	Degrees	Value
Red	180°	
Yellow	36°	9
Blue	72°	
Green	72°	
1 person = ___ degrees		

2. Type of pet that **60** people had

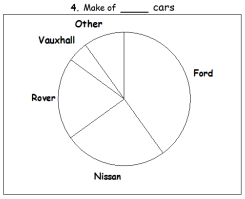


Pet	Degrees	Value
Dog	180°	
Cat	36°	
Budgie	36°	
Goldfish	36°	

3. Favourite football team of **120** people

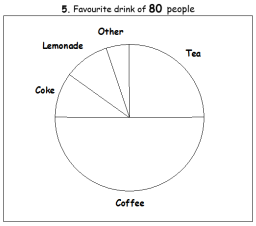
Favourite colour	Degrees	Value
Liverpool		
Man Utd		
Arsenal		
1 person = ___ degrees		

4. Make of _____ cars



Make of car	Degrees	Value
Ford	144°	
Nissan	90°	
Rover	72°	8
Vauxhall		
Other	36°	
1 person = ___ degrees		

5. Favourite drink of **80** people



Drink	Degrees	Value
Tea	90°	
Coffee	180°	
Coke	36°	
Lemonade		
Other	18°	
1 person = ___ degrees		

EXTENSION QUESTIONS

5a) What **fraction** of people said **Tea** was their favourite drink?

5b) What **fraction** of people said **Lemonade** was their favourite drink?

5c) What **percentage** of people said **Coffee** was their favourite drink?

5d) What **percentage** of people said **Other** was their favourite drink?

5e) What is the **probability** that a person, chosen at random, said their favourite drink is **Coke?**

5f) **How many** of the people asked said that **Coke** or **Lemonade** was their favourite drink?

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