



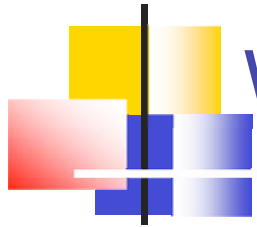
Engaging with shape

Some activities for engaging students with ideas about shape and the relationships between shapes and stories



Engaging with shape

- What is shape?
- Why should we teach shape?
- How do we teach shape?
- When should we start teaching shape?



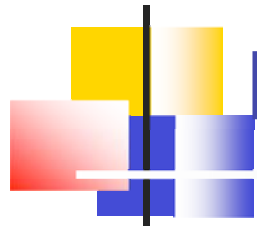
What is shape?

- How do you describe shape?
- How can you see/describe shape without prior experiences in working with shape?
- What are you describing with $n < \approx 30$?
 - Why describe what you see when it is not necessarily like that in the underlying distribution?



Why should we teach shape?

- Why describe distributional shape?
- Should we be getting students to describe shape of sample distributions with $n < \approx 30$?



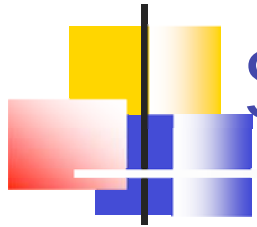
How do we teach shape?

- How do you introduce/expose students to ideas of shape?
- Should we build students' general knowledge about shapes of population distributions of common everyday variables?



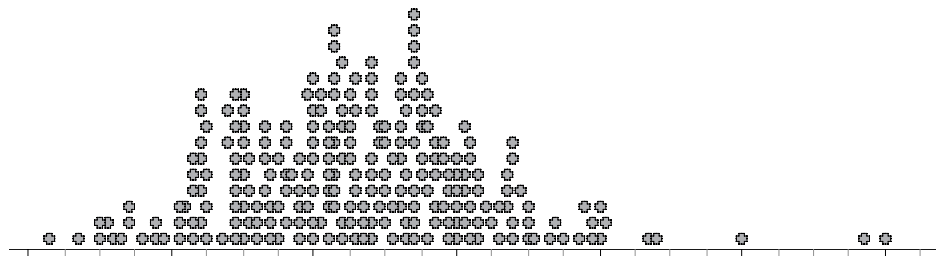
Sketching shapes

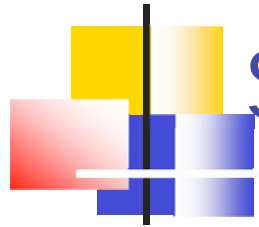
- We will give you very quick glimpses of some dot plots one at a time
- Sketch the shape in the ‘Sketch of Shape’ column on your handout



Sketch of shape

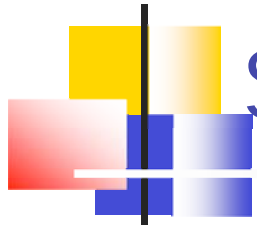
1.





Sketch of shape

1.



Sketch of shape

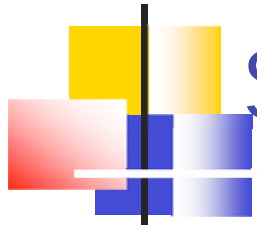
2.





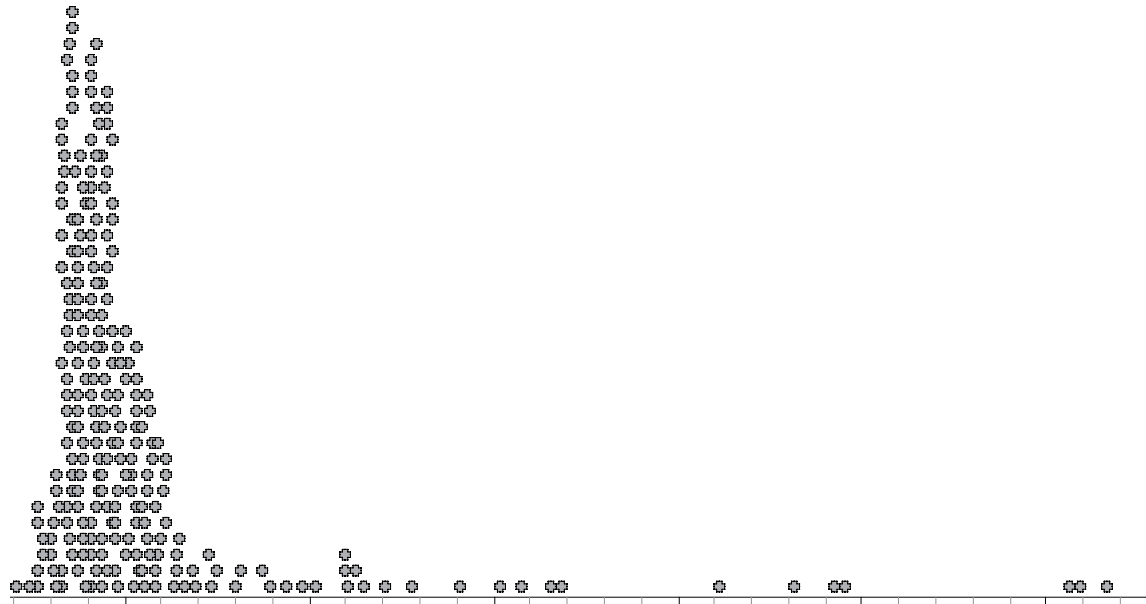
Sketch of shape

2.



Sketch of shape

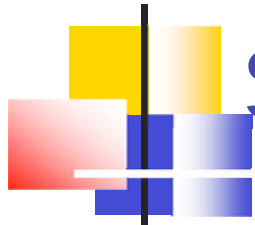
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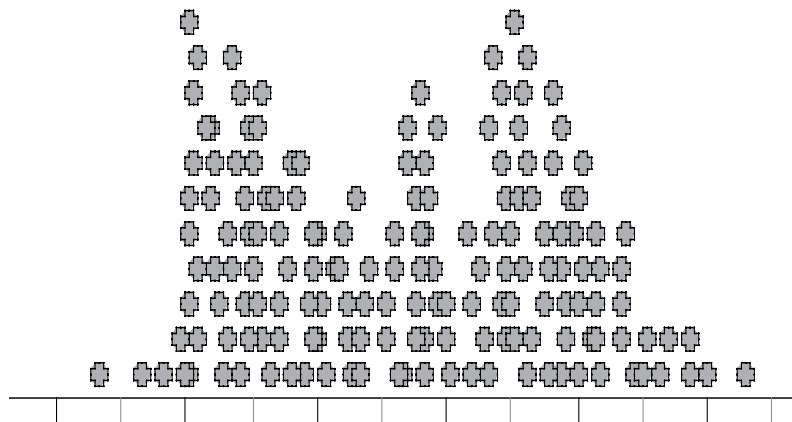
Sketch of shape

3.



Sketch of shape

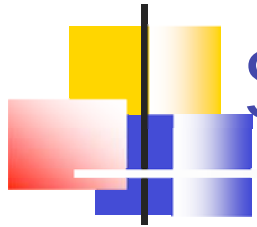
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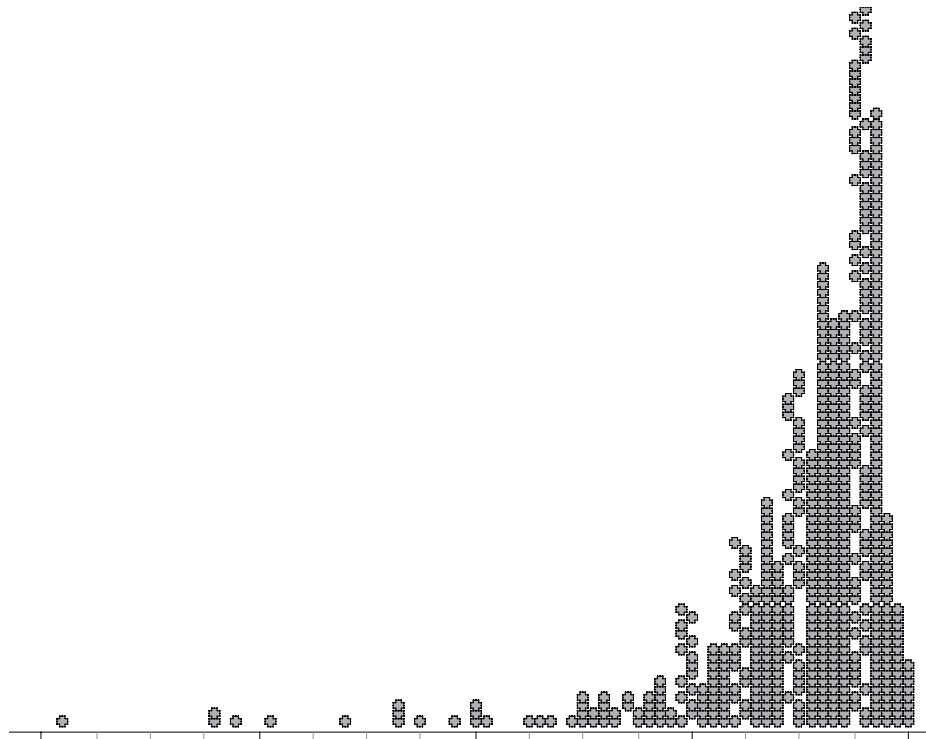
Sketch of shape

4.



Sketch of shape

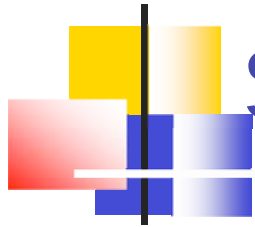
5.





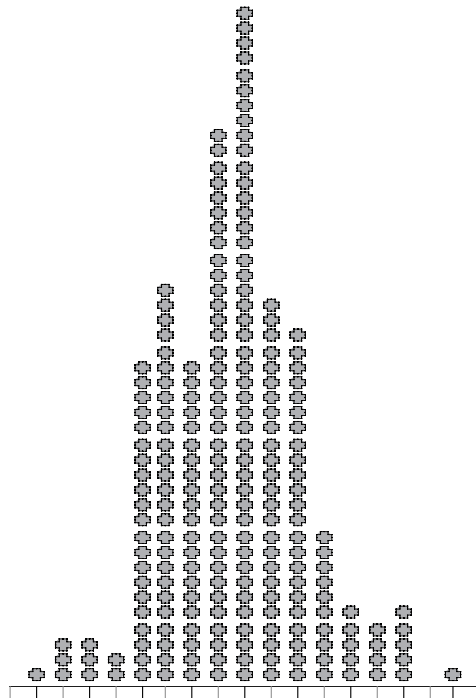
Sketch of shape

5.



Sketch of shape

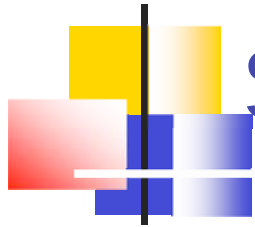
6.





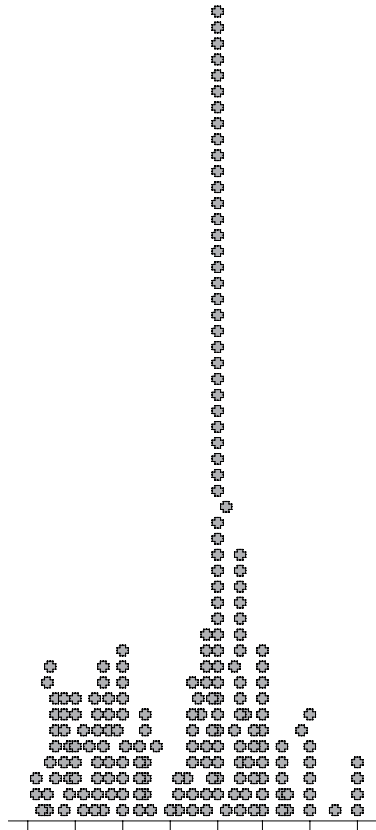
Sketch of shape

6.



Sketch of shape

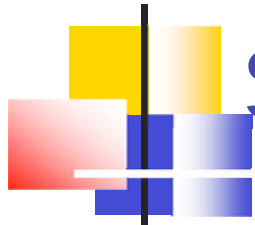
7.





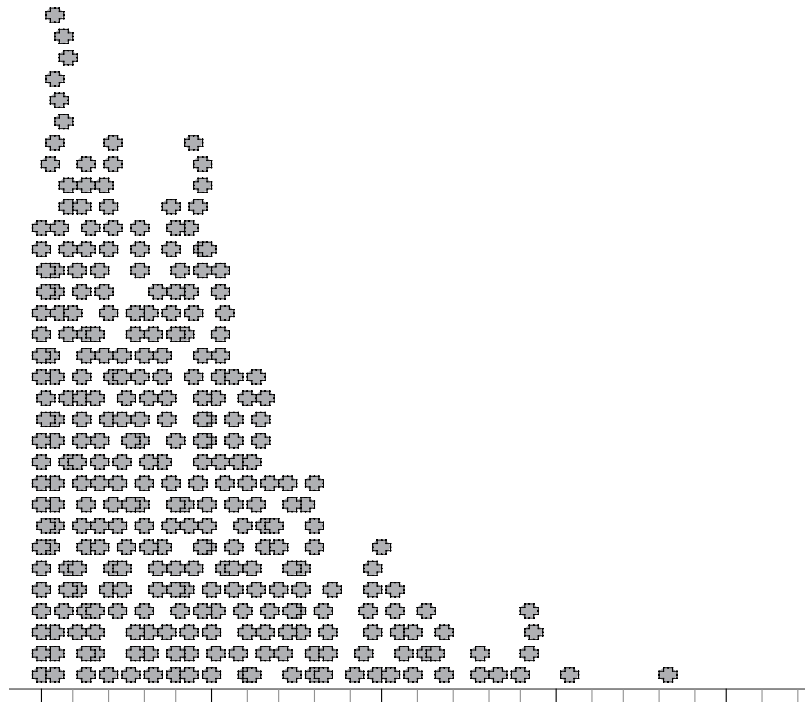
Sketch of shape

7.



Sketch of shape

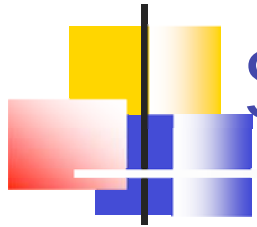
8.



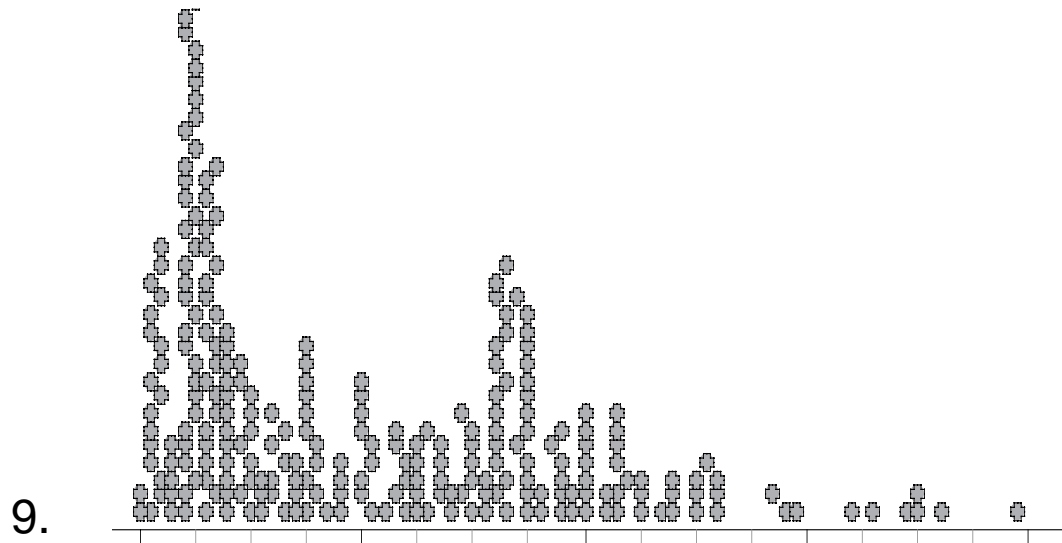


Sketch of shape

8.



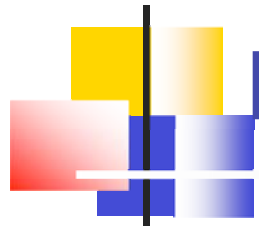
Sketch of shape





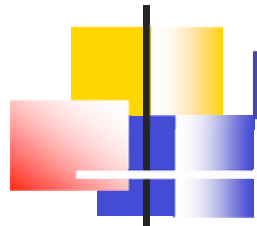
Sketch of shape

9.



Reflection: *Seeing shape*

- What did you look for when catching a glimpse of the plot?
- Are your plots similar to your neighbours?



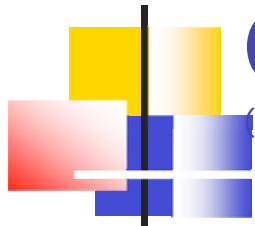
Describing shape (hand out strips)

- Choose one plot and with your neighbour discuss how your Year 10 students would describe the shape
 - What sort of language would they use?



Connecting shape and context

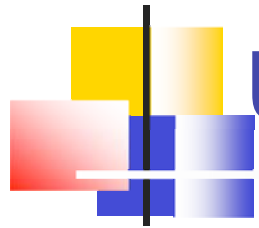
- In pairs, match each context with its graph
 - contexts given at bottom of page 1



Connecting context and shape

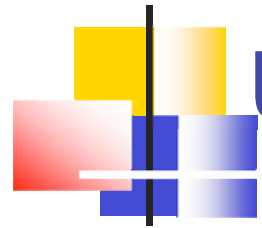
(collect strips, give out plots)

- In pairs, discuss the shape of the distribution for each variable (page 2)
- Sketch your predicted distribution
 - Give some idea of x -values
- Justify the sketch of your predicted distribution
 - Students can present their sketch and justification to the rest of the class
 - Show and discuss with the class the actual distributions from some collected data



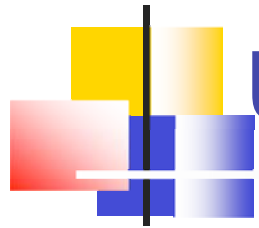
Using shape to tell the story

- In pairs, write a full description of your plot
(page 3)
 - use statistical terminology where appropriate
 - write in terms of the context
 - give some idea of x -values



Using shape to tell the story

- Detach page 3 and give your description to another pair
 - Don't let them see your plot
 - Ask them to sketch the distribution from your description



Using shape to tell the story

- Detach page 3 and give your description to another pair
 - Don't let them see your plot
 - Ask them to sketch the distribution from your description
 - Compare with the handed-out plot
(Collect the handed-out plots)



Engaging with shape

- One of the keys for unlocking the story behind the data
- Develops the skill of what to look at and what to look for
 - Is there anything interesting, unusual, or unexpected?

What are the data trying to tell us?

Thank you!