Pictures of Data and Their Shapes

Three questions every time: shape, center, spread. Three pictures: dot plot (every value), histogram (bins, the shape), box plot (the 5-number summary). The tail names the shape.

1 THE VOCABULARY
Words we use

Distribution how the values spread along the number line.

Dot plot, histogram, box plot every value; bins; the 5-number summary.

Bin an interval grouped into one bar.

5-number summary min, Q1, median, Q3, max.

Symmetric, skewed right, skewed left mirror sides; tail to the right; tail to the left.

- Watch out for these.
- Naming the skew by the pile instead of the tail.
- Reading a box plot as if the box were the whole data.
- Thinking one bin width is the only right one.
- Skipping the shape question and jumping to the mean.

2 THE METHOD
Read a data set

1. PICTURE IT dot plot for a small set; histogram for a big one; box plot to compare.
2. SHAPE find the tail: symmetric, skewed right, or skewed left.
3. CENTER Lesson 2.
4. SPREAD Lesson 3.
5. SAY IT a sentence about the context.

WHY THE TAIL NAMES THE SHAPE
The tail is where the unusual values are. Skewed right means a few values are much bigger than the rest; skewed left means a few are much smaller.

3 THE SONGS
25 students, 0 to 88 songs

5-number summary 0, 6.5, 12, 18, 88	from the tool
box from 6.5 to 18, line at 12	the middle half of students
whisker to 88	one student far beyond the rest
skewed right	the tail points to the big numbers
a sentence	most students downloaded fewer than 20 songs; one downloaded 88

WHY THE SHAPES
Incomes: a few stars, right tail. Easy test: a few low scores, left tail. Heights: piled in the middle, symmetric.

SAY IT OUT LOUD
Shape, center, spread, every time. The tail tells you the name.