Comparing Data Sets

Same scale, shape first, statistics that fit the shape (the same kind for both), compare centers and spreads, write sentences in context. Symmetric with no outliers: mean and σ. Skewed or outliers: median and IQR.

1 THE VOCABULARY
Words we use

Compare alike and different: shape, center, spread, in context.
Consistent little spread: a smaller IQR or σ.
Same kind median and IQR for both, or mean and σ for both.
σ the whole group, like a whole class.
Sentence frame higher median ... more consistent ...

- **Watch out for these.**
- Comparing with the mean when one group is skewed or has an outlier.
- Using the median for one group and the mean for the other.
- Forgetting to compare spread.
- Numbers with no sentence in context.

2 THE METHOD
Compare groups

1. **SAME SCALE** stacked box plots or histograms.
2. **SHAPE** each group: symmetric or skewed? outliers?
3. **CHOOSE** symmetric, no outliers: mean and σ. Otherwise: median and IQR. Same kind for both.
4. **COMPARE** which is higher? which is more consistent?
5. **WRITE** sentences with the numbers and the story.

WHY THE SAME KIND OF STATISTIC
A median and a mean measure the center differently. Comparing one group's median with another's mean is not a fair comparison.

3 TWO CLASSES
Means 83.3 and 83

1st period: skewed left, outlier 34	fence 60.25
4th period: roughly symmetric, no outliers	
use the median and IQR for both	the shape picks
medians 87.5 and 83	1st period scored higher
IQRs 12.5 and 5	4th period was more consistent

DELIA
C: highest mean (18.5 cm) and smallest σ (1.50). Tallest and most even.

SAY IT OUT LOUD
Same scale, shape first, the statistics that fit, then say it in context.

Unit 12, Lesson 5 in one line: compare groups on the same scale with statistics that fit the shape, the same kind for each, and write the comparison of center and spread in context.