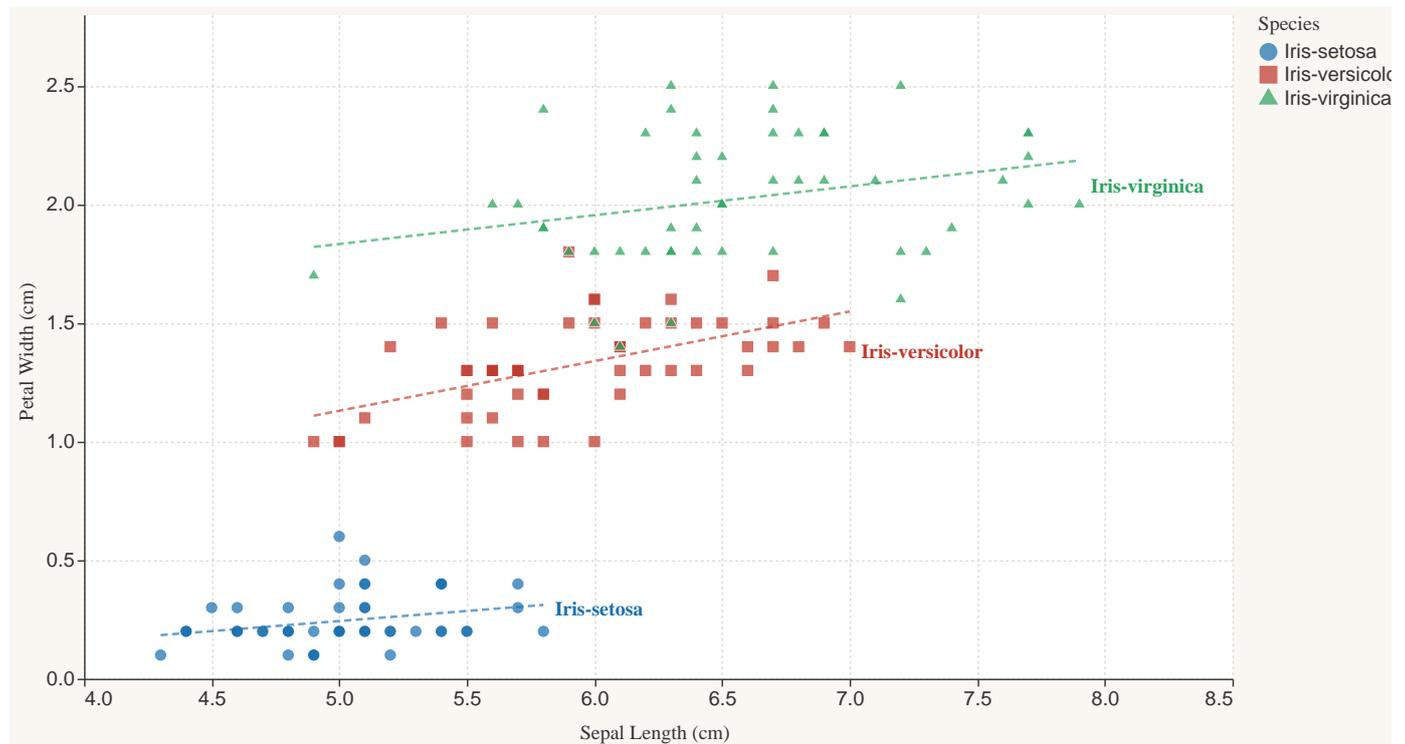


Setosa petals are ~8.5x narrower than Virginica despite overlapping sepal lengths

Iris dataset, 150 flowers across 3 species (50 each), with 4 morphological measurements in cm.



Mean petal width: Iris-setosa = 0.2 cm vs Iris-virginica = 2.0 cm - a 10x gap - even as sepal lengths overlap between ~4.9-5.8 cm.

Dataset Snapshot

Iris dataset, 150 flowers across 3 species (50 each), with 4 morphological measurements in cm.

Key Insight

Petal width diverges by ~8.5x between Setosa (mean 0.24 cm) and Virginica (mean 2.03 cm), even though their sepal lengths share a substantial overlapping range (~4.9-5.8 cm). Setosa sepal length spans 4.3-5.8 cm; Virginica spans 4.9-7.9 cm - a wide overlap zone of nearly 1 cm. Within that overlap zone, Setosa petal widths cluster tightly at 0.1-0.6 cm while Virginica petal widths reach 1.5-2.5 cm. Versicolor sits in between (mean 1.33 cm), confirming petal width is the sharpest discriminator across all three species. Practical read: Sepal length alone is a poor species identifier - two flowers with identical sepal lengths of 5.5 cm could be Setosa or Virginica. Petal width cuts through that ambiguity instantly, making it the single most diagnostic measurement for field classification.

Supporting Chart

A scatterplot maps sepal length (x-axis) against petal width (y-axis) for all 150 flowers, with species encoded by color and per-species trend lines; all three species labels are anchored to the right side of their respective clusters.

Why This Matters

- Sepal length is a misleading proxy for species identity - petal width is the reliable signal.
- The ~8.5x ratio between Setosa and Virginica petal widths (0.24 cm vs. 2.03 cm) suggests a fundamental morphological divergence, not just a gradual gradient.
- Any classification model relying primarily on sepal length will misclassify overlapping specimens; petal width should be the primary feature.

Confidence and Limits

All 150 records are complete with no nulls, and the group means are based on balanced 50-sample groups per species. This is observational morphological data - the petal/sepal relationship reflects natural variation, not a controlled experiment.