Three methods were used to collect linear measurements of ammonite shells:
1) manually from specimens using digital calipers
2) using a custom-built website with front and side view photographs
3) using ImageJ, a widely used program for collecting counts and measurements, with front and side view photographs.

For five ammonite specimens, I compared coiling parameter values calculated using each of the three methods.

Accuracy: No significant difference was found in mean parameter values between the three methods across all specimens (Fig. 1, p-value = 0.603, repeated measures ANOVA). Website measurements were as accurate as measurements obtained via other methods.

Precision: Mean standard errors obtained using each method do not differ from each other (Fig. 3, p-value = 0.122, repeated measures ANOVA). Website measurements were as precise as measurements obtained via other methods.

Effect of training
I compared measurements taken via the website by volunteers with no prior knowledge to those taken after the volunteer received training measuring the specimens manually.

Average improvement in accuracy after having received training was indistinguishable from 0 (p-value = 0.6775, Wilcoxon signed-rank test). While there was improvement in some measurements, none one volunteer showed consistent improvement (Fig. 4).

Training improved measurement accuracy in some cases, but the effect was inconsistent and small. Thus, untrained volunteers mobilized by crowdsourcing efforts may be a valuable resource for accelerating data capture.

Web-based measurements were as precise and accurate as other widely used methods.

There was no evidence that training significantly improved measurement accuracy.