Scientific Method
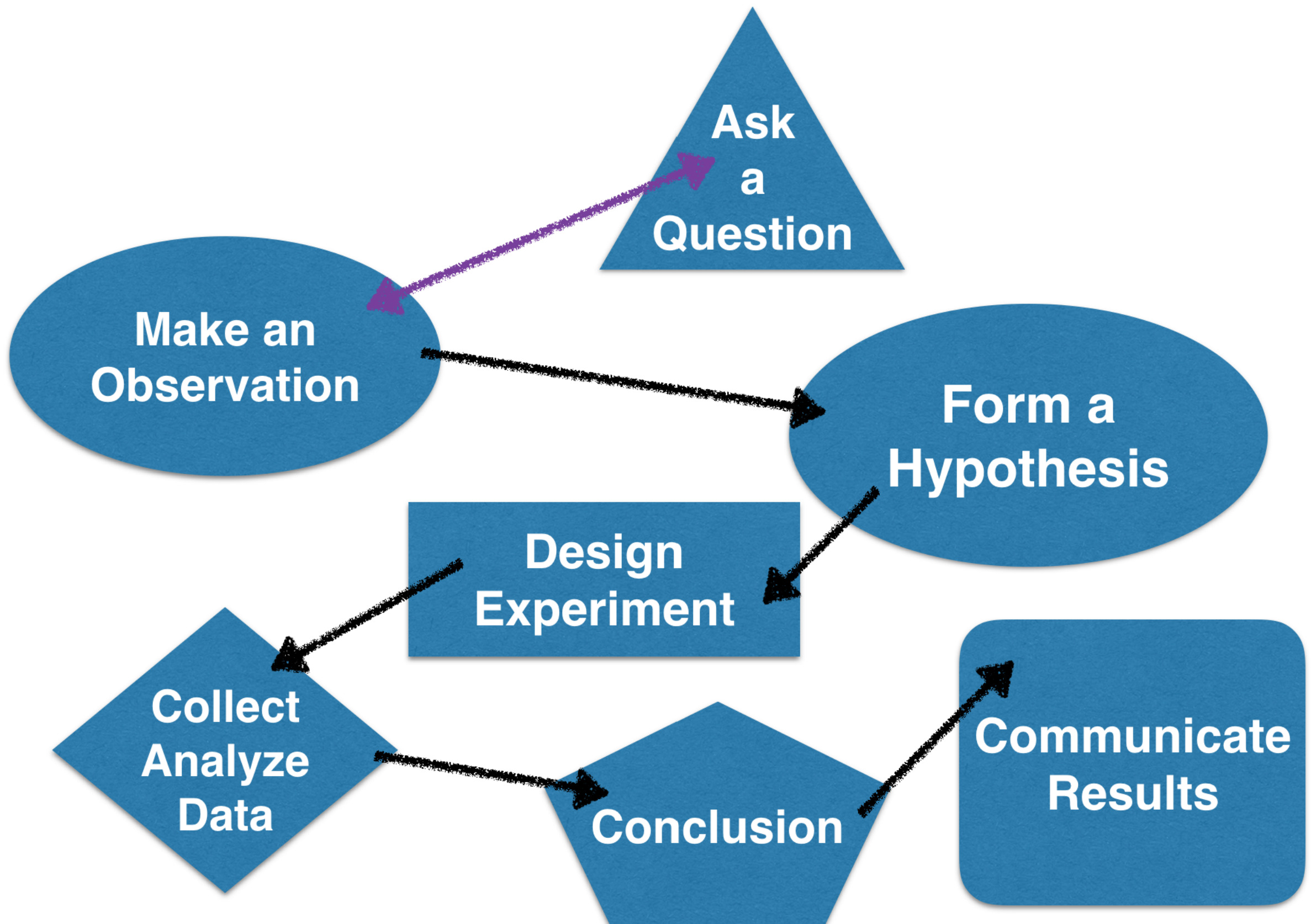
science 2k18

Scientific Method:

* scientists follow steps to answer questions and solve problems

Step 1 and Step 2:

* <u>Ask a QUESTION</u>

* <u>MAKE AN OBSERVATION</u>

* either step could be the 1st step. Let's think about this...

* Im observing deformities in tadpoles in the pond next to my house.

Steps 3:

* Form a HYPOTHESIS.

* This is a prediction based on your observation/question.

* If a substance in the pond water is causing deformities, then some tadpoles will develop deformities when they are raised in that water.

Step 4: Design Experiment

* Design it to show if a particular "FACTOR" is causing the outcome.

* <u>Controlled experiment: tests only one factor at a time</u> and consists of a control group and 1+ experimental groups.

* <u>All of the factors are the same except for ONE FACTOR</u>

* EX: tadpoles in pond: factors...?

Step 5: Collect /Analyze

* <u>Scientists always try to test many individuals/multiple numbers/TRIALS.</u>

* the greater the number of organisms they test, the more certain they can be of data.

* to support conclusions

Step 6: Make Conclusion

* <u>Analyze the data and see if the results support the hypothesis</u>

* Was it really the pond water that was causing the deformities?

Step 7: Communicate Results

* <u>Communicate results with other groups or scientists to see if they got the same results</u>

* repeat, compare or maybe new data can be added to strengthen existing hypotheses.