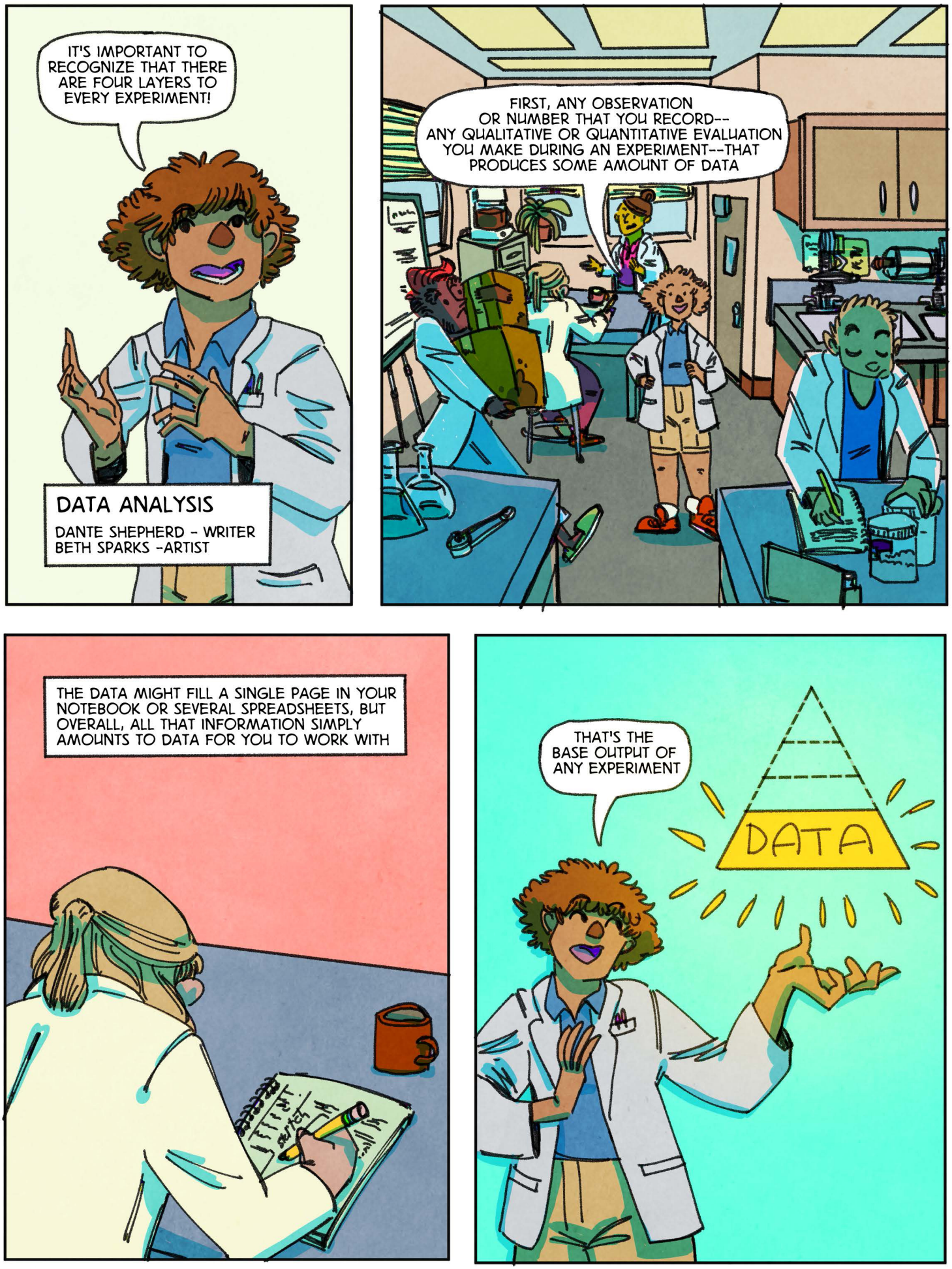

Northeastern

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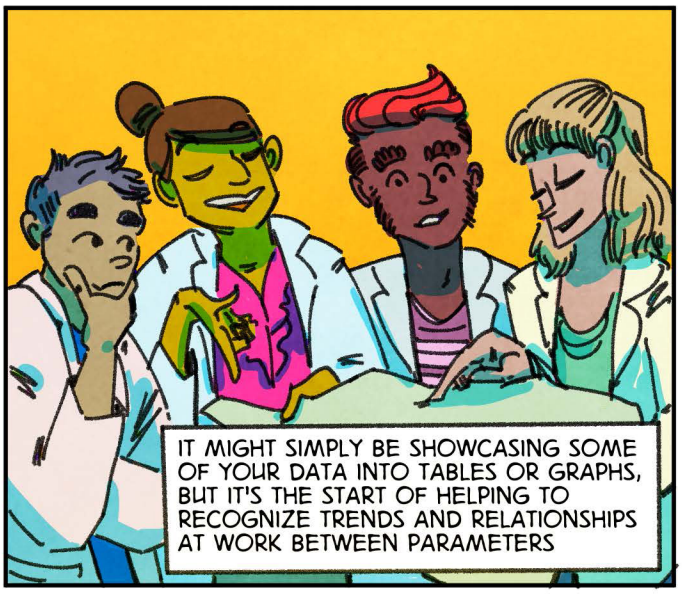
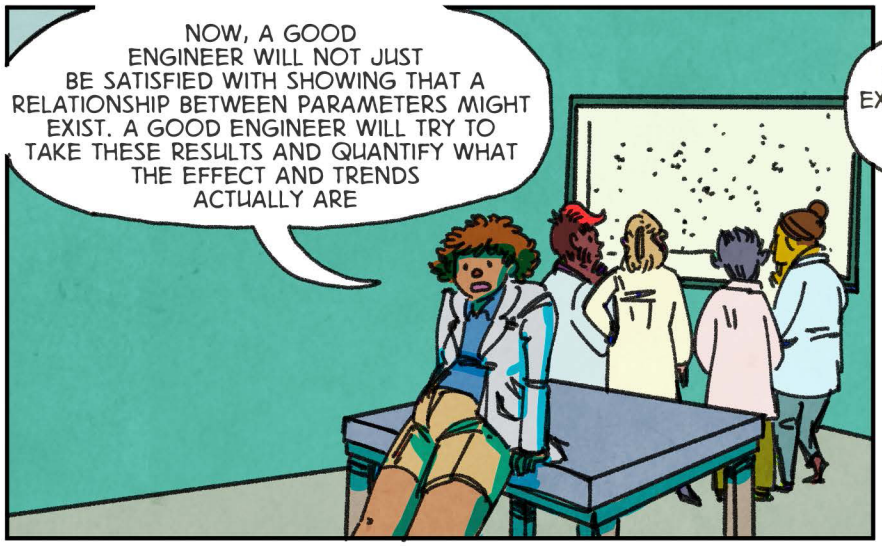
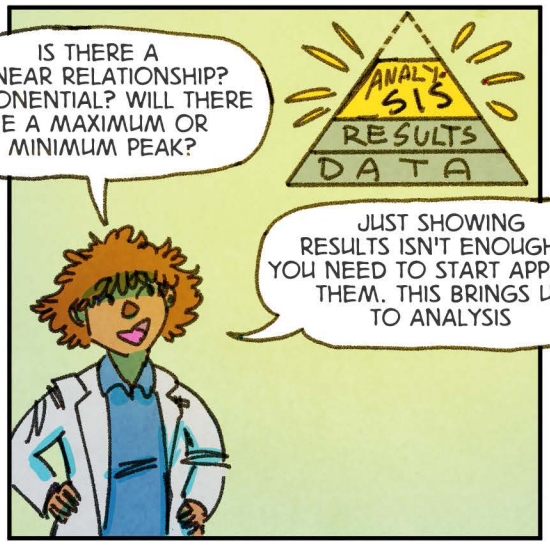
NEXT, YOU CAN ACTUALLY ASSEMBLE THAT DATA IN SOME ORDER OR GROUPINGS TO DETERMINE IF YOU CAN EVALUATE ANY CHANGE OR EFFECT ON THE OUTCOMES OF YOUR EXPERIMENT

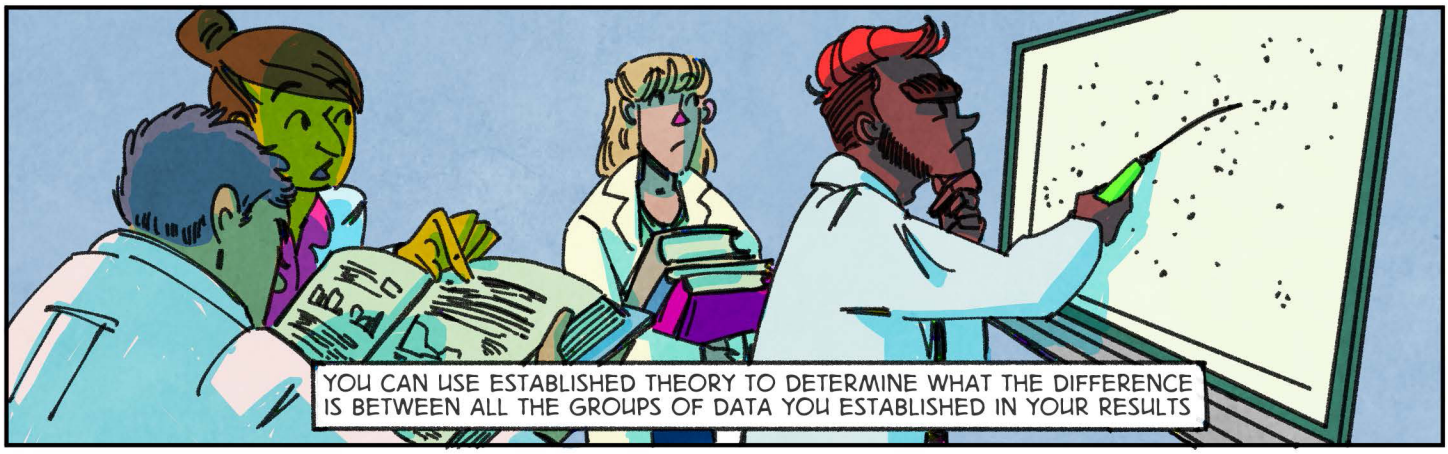

THESE ARE YOUR RESULTS!

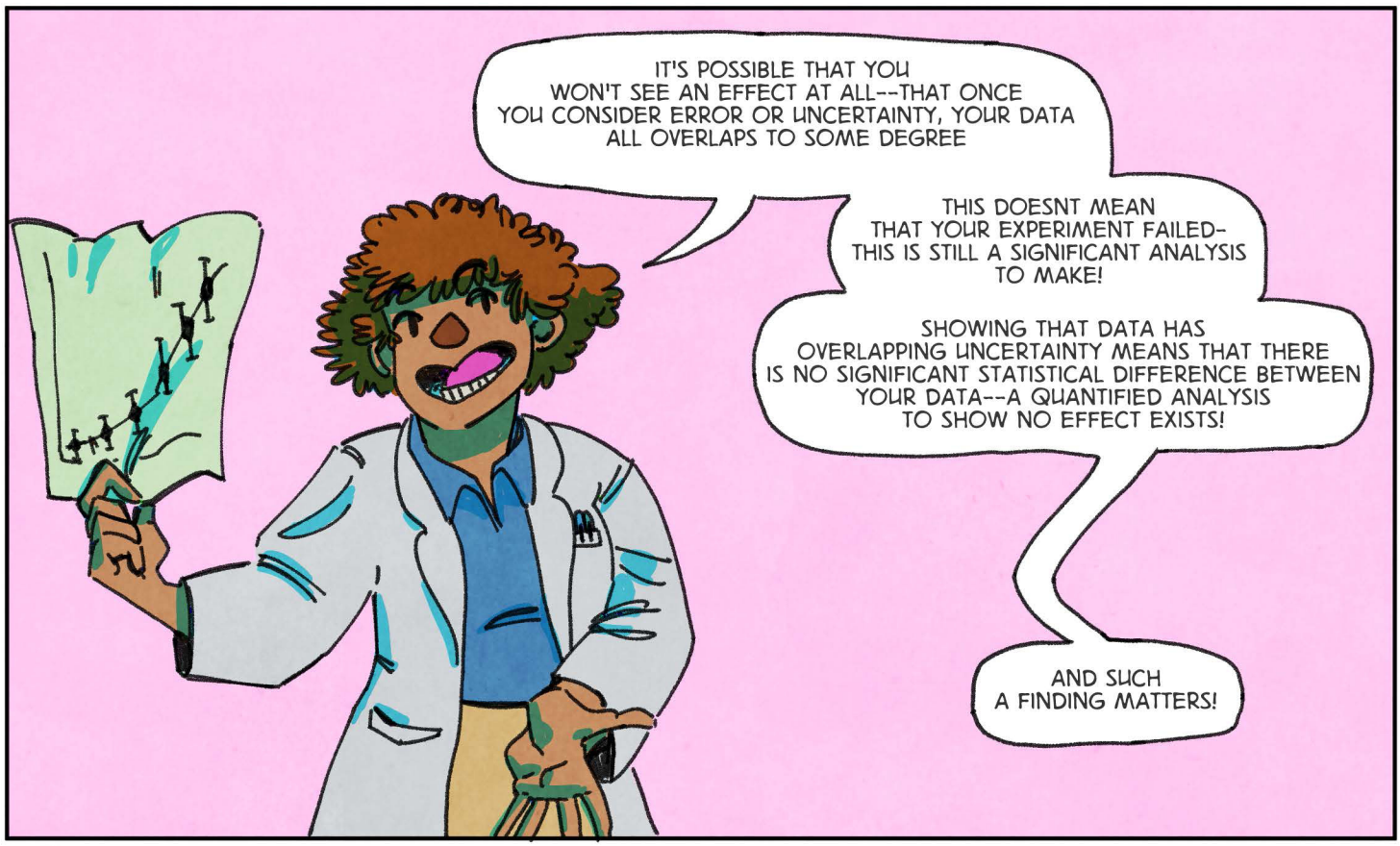

IT MIGHT SIMPLY BE SHOWCASING SOME OF YOUR DATA INTO TABLES OR GRAPHS, BUT IT'S THE START OF HELPING TO RECOGNIZE TRENDS AND RELATIONSHIPS AT WORK BETWEEN PARAMETERS

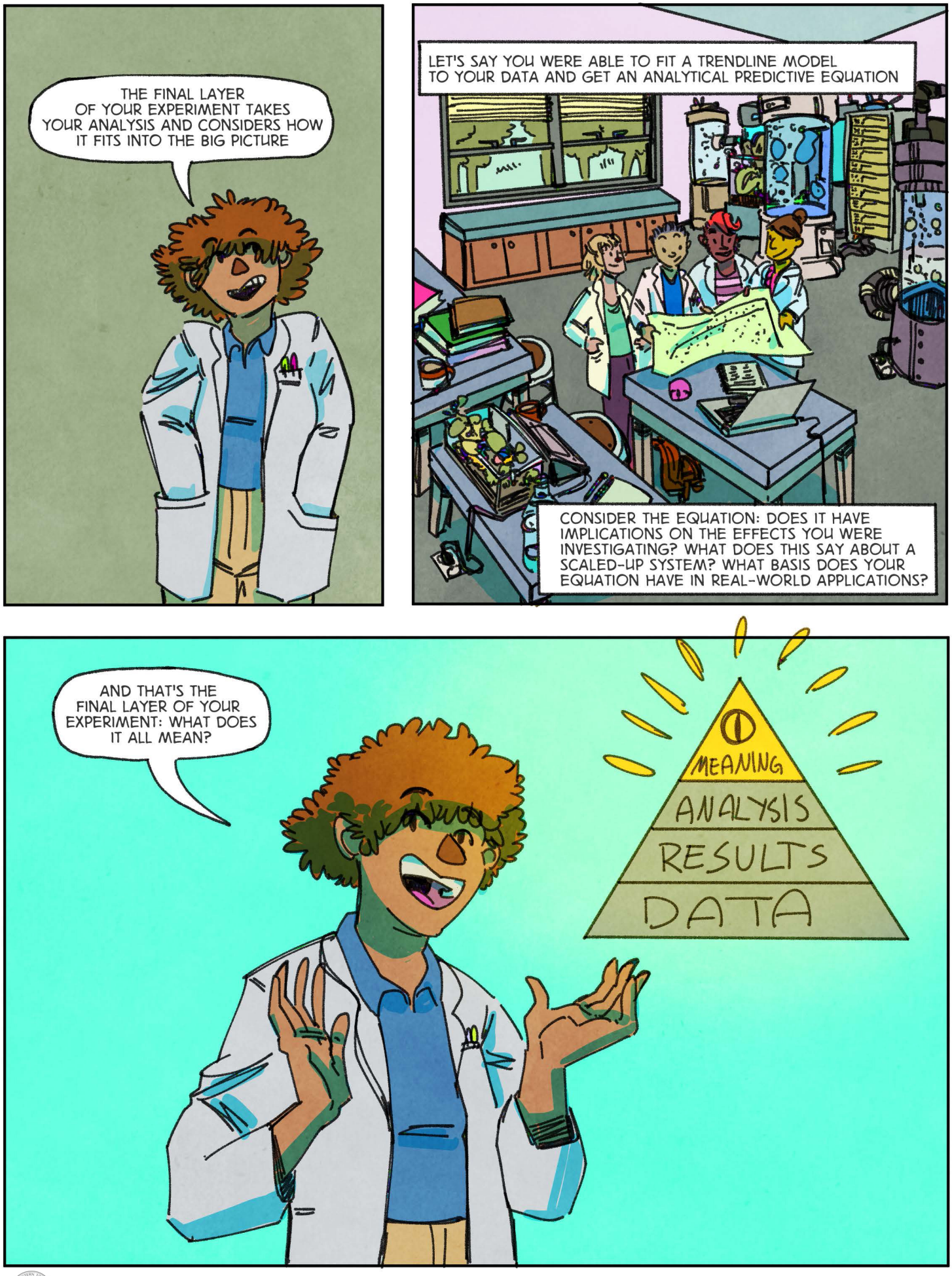

THAT'S THE SECOND LAYER OF YOUR EXPERIMENT!
RESULTS
DATA

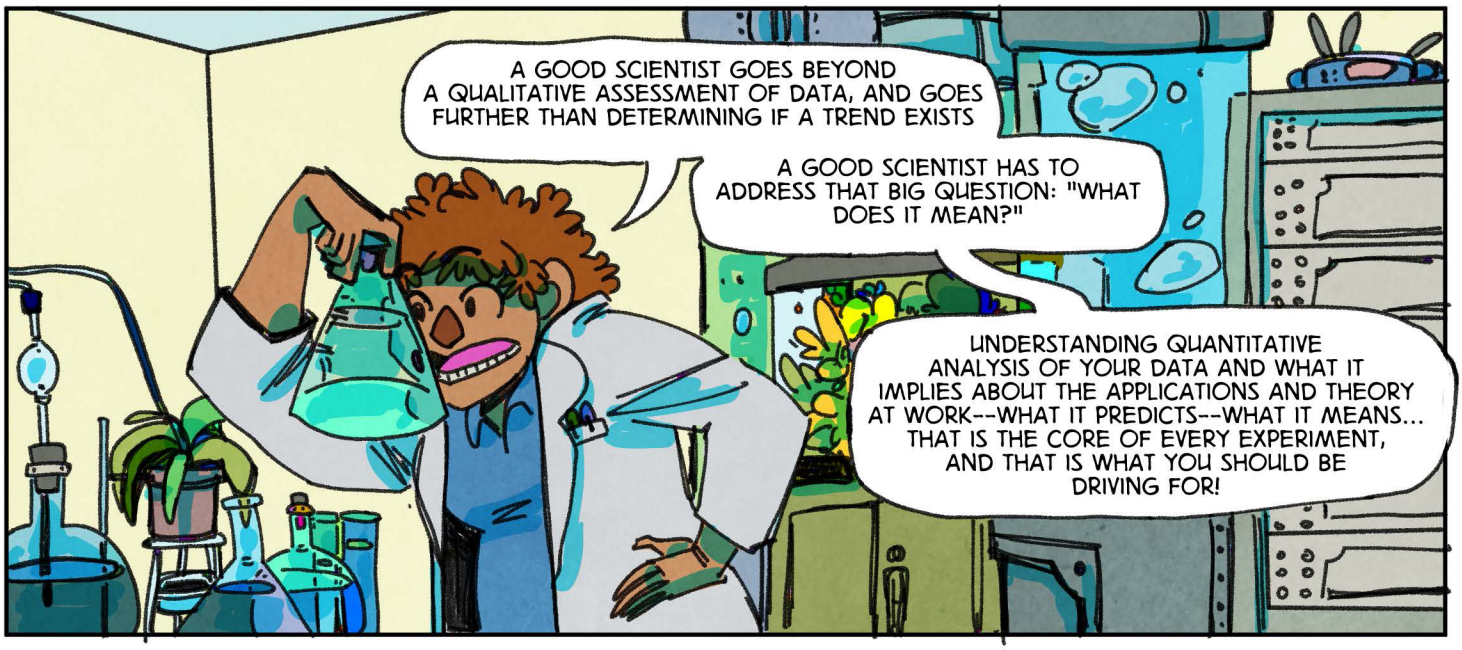

NOW, A GOOD ENGINEER WILL NOT JUST BE SATISFIED WITH SHOWING THAT A RELATIONSHIP BETWEEN PARAMETERS MIGHT EXIST. A GOOD ENGINEER WILL TRY TO TAKE THESE RESULTS AND QUANTIFY WHAT THE EFFECT AND TRENDS ACTUALLY ARE

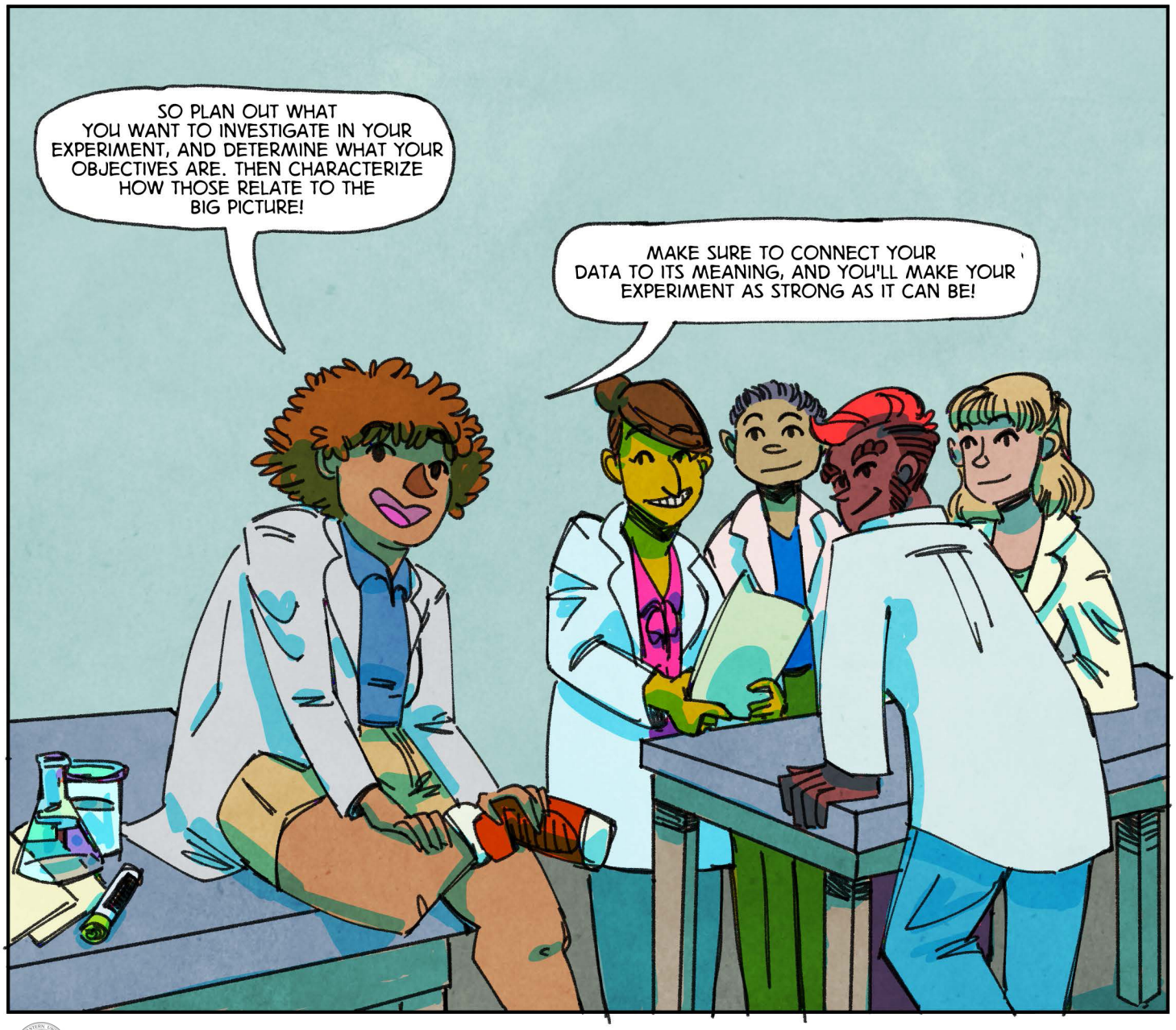

IS THERE A LINEAR RELATIONSHIP? EXPONENTIAL? WILL THERE BE A MAXIMUM OR MINIMUM PEAK?
ANALYSIS
RESULTS
DATA
JUST SHOWING RESULTS ISN'T ENOUGH-- YOU NEED TO START APPLYING THEM. THIS BRINGS US TO ANALYSIS


YOU CAN USE ESTABLISHED THEORY TO DETERMINE WHAT THE DIFFERENCE IS BETWEEN ALL THE GROUPS OF DATA YOU ESTABLISHED IN YOUR RESULTS


IT'S POSSIBLE THAT YOU WON'T SEE AN EFFECT AT ALL--THAT ONCE YOU CONSIDER ERROR OR UNCERTAINTY, YOUR DATA ALL OVERLAPS TO SOME DEGREE
THIS DOESNT MEAN THAT YOUR EXPERIMENT FAILED- THIS IS STILL A SIGNIFICANT ANALYSIS TO MAKE!
SHOWING THAT DATA HAS OVERLAPPING UNCERTAINTY MEANS THAT THERE IS NO SIGNIFICANT STATISTICAL DIFFERENCE BETWEEN YOUR DATA--A QUANTIFIED ANALYSIS TO SHOW NO EFFECT EXISTS!
AND SUCH A FINDING MATTERS!


THE FINAL LAYER OF YOUR EXPERIMENT TAKES YOUR ANALYSIS AND CONSIDERS HOW IT FITS INTO THE BIG PICTURE
LET'S SAY YOU WERE ABLE TO FIT A TRENDLINE MODEL TO YOUR DATA AND GET AN ANALYTICAL PREDICTIVE EQUATION
CONSIDER THE EQUATION: DOES IT HAVE IMPLICATIONS ON THE EFFECTS YOU WERE INVESTIGATING? WHAT DOES THIS SAY ABOUT A SCALED-UP SYSTEM? WHAT BASIS DOES YOUR EQUATION HAVE IN REAL-WORLD APPLICATIONS?
AND THAT'S THE FINAL LAYER OF YOUR EXPERIMENT: WHAT DOES IT ALL MEAN?
MEANING
ANALYSIS
RESULTS
DATA


A GOOD SCIENTIST GOES BEYOND A QUALITATIVE ASSESSMENT OF DATA, AND GOES FURTHER THAN DETERMINING IF A TREND EXISTS
A GOOD SCIENTIST HAS TO ADDRESS THAT BIG QUESTION: "WHAT DOES IT MEAN?"
UNDERSTANDING QUANTITATIVE ANALYSIS OF YOUR DATA AND WHAT IT IMPLIES ABOUT THE APPLICATIONS AND THEORY AT WORK--WHAT IT PREDICTS--WHAT IT MEANS... THAT IS THE CORE OF EVERY EXPERIMENT, AND THAT IS WHAT YOU SHOULD BE DRIVING FOR!


SO PLAN OUT WHAT YOU WANT TO INVESTIGATE IN YOUR EXPERIMENT, AND DETERMINE WHAT YOUR OBJECTIVES ARE. THEN CHARACTERIZE HOW THOSE RELATE TO THE BIG PICTURE!
MAKE SURE TO CONNECT YOUR DATA TO ITS MEANING, AND YOU'LL MAKE YOUR EXPERIMENT AS STRONG AS IT CAN BE!