

Formal versus informal language (the no-no list), by Viva Horowitz

Informal / imprecise	Formal / preferable
<i>A screenshot of an Excel spreadsheet</i>	A properly formatted table where you've thought about communicating the information, with appropriate units and significant figures.
should	"is expected to" or "was ... so that" or "did ... in order to"
We had to do x.	Y necessitated/required x.
could	might <i>Careful about hypotheticals. There are places "could" might work, but usually only in the discussion or conclusions, when speaking about possible future scenarios.</i>
Trying to / tried to	<i>Just tell me what you did.</i>
We were able to do x.	We did x.
get	Obtain, find, understand...
plugged in (to an equation)	substituted, rearranged, evaluated with (if you arrive at a numeric value)
wanted	aimed, was desirable / valuable
labeled (acceptable, but not as formal as...) ["the laser was labeled 532 nm"]	nominal or specified ["The laser wavelength was specified to be 532 nm." or "The laser wavelength was nominally 532 nm."]
You (or any command to the reader)	[Rewrite to avoid the second person. This is not formal style.]
I	We (assuming there was a joint effort)
got	were, obtained, purchased, became, received, recovered, measured, or calculated
lab	investigation, experiment (or laboratory if you mean the room)
prove	Verify, evidence supporting (assuming it's experimental) Note: If you literally have a mathematical proof, then you may use the word "prove". A proof starts with axioms and definitions and ends with a result that will be true for all time without further refinement.

based off	based on
bug (in computer code)	error
computer code	program (or script)
figure out	discern, determine, ascertain, measure, calculate, ...
utilize	use (We know you are trying to elevate your diction, but “utilize” is just awkward. Either utilize means “use” or it means “use effectively” which is a pretty big value judgment, or it means “to use something in a way different from how it was designed to be used” which is probably not what you intend to say. It makes it sound like you are using an AI to write.)
set-up (acceptable, but not as formal as...)	apparatus
human error	random error (if it is) or systematic error (if it is) If you actually made a mistake, then tell me what you did wrong.
actual value	accepted value (if it’s the one in the literature) or experimental value or measured value or computed value or theoretical value or published value (if you know of a publication) Caveats: <ul style="list-style-type: none"> • If it’s pi or e or something that can be calculated precisely, then you could say actual or true value. • If it’s the speed of light or another value that has been defined to be a certain value, then you can say actual or true value. • If you are talking about the platonic ideal of a value that we can never fully know (because measurements always have uncertainty), and then I might say “true value”. But that is not the same as the accepted / published value
learn	<i>Focus on the physics, not your experience. You can talk about learning if you are writing an education/psychology/artificial intelligence paper.</i>
impact (unless there is literally a physical collision)	effect
Away from / off of (for your error analysis)	differs by. (<i>You might also calculate the systematic error:</i>)

goes	travels (eg. the beam travels)
The x (prior to introducing whatever x is)	An x (if it's the first time you are introducing it.) (<i>This is about clear communication</i>)
High or low wavelength	Short or long wavelength (The reason to avoid "high" and "low" is that wavelength is inversely proportional to energy, and we don't want to cause confusion about whether the energy is high or low.)

See also https://www.deirdremccloskey.com/docs/pdf/Article_309.pdf