Writing templates for AP Physics

Contents

Flowchart form

Relationship Influence diagram			Time 1	Time 2	Time 3	Time 4
	Equal or same **A**ltered or different	Quantity 1				
		Quantity 2				
		Quantity 3				
		Quantity 4				
		…				
	So what	Quantity of interest				

Short form (helpful for definitions/quick part a)

Relationship	[ ] According to _____, (equation or paraphrase of equation) _____ [ ] (Simply state principle without using principle's name): _____			
	Quantity 1:	Quantity 2:	Quantity 3:	…
Equal or same	[ ] Constant/same [ ] is _____	[ ] Constant/same [ ] is _____	[ ] Constant/same [ ] is _____	[ ] Constant/same [ ] is _____
Altered or different	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased
So what	[ ] So, it must be the case that the _____ of | on | at _____ is [greater than/less than/equal to/etc.] the _____ of | on | at _____. [ ] So,			

Writing templates for AP Physics

Longer form (helpful for working with conservation laws/sums)

Relationship and some **E**qual or same	The system is _____. According to _____, (total _____ …), [ ] the _____ (of the _____, which equals _____ according to _____), [ ] the _____ (of the _____, which equals _____ according to _____), [ ] the _____ (of the _____, which equals _____ according to _____), [ ] and the _____ (of the _____, which equals _____ according to _____) [ ] is converted into [ ] is shared between/among [ ] equals [ ] the _____ (of the _____, which equals _____ according to _____), [ ] the _____ (of the _____, which equals _____ according to _____), [ ] the _____ (of the _____, which equals _____ according to _____), [ ] and the _____ (of the _____, which equals _____ according to _____) [ ] because the _____ delivered to/performed on the system is _____.

	Quantity 1:	Quantity 2:	Quantity 3:	…
Equal or same	[ ] Constant/same [ ] is _____	[ ] Constant/same [ ] is _____	[ ] Constant/same [ ] is _____	(It might be easier to mark (=), inc, dec, etc. near symbols in algebraic work and/or in phrasal templates above).
Altered or different	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	[ ] is (much) greater than [ ] is (much) less than [ ] increased [ ] decreased	

So what	(You can intermix phrases below with phrases above): [ ] So, it must be the case that the _____ of	on	at _____ is [greater than/less than/equal to/etc.] the _____ of	on	at _____. [ ] It must be the case that the _____ of	on	at _____ is [greater than/less than/equal to/etc.] the _____ of	on	at _____. [ ] and it must be the case that the _____ of	on	at _____ is [greater than/less than/equal to/etc.] the _____ of	on	at _____. [ ] (but) the increase/decrease in _____ must be compensated for by an increase/decrease in _____ to keep _____ conserved/constant/the same. [ ] So, to keep _____ conserved/constant/the same, minimizing/maximizing _____ requires maximizing/minimizing _____.

Writing templates for AP Physics

Regardless of whether the _____ is actually correct, is the ___ consistent with your reasoning from ___?

They said	I said	Did we agree?
Diagrams/Equations	**Diagrams/Equations**	
Citation [ ] In the _____ from the Internet, [ ] In student A's _____, [ ] In the _____,	**Citation** In my reasoning in part ___, I relied on/used _____ (name of principle/graph)	
Directly observable feature [ ] the _____ appears in the numerator [ ] the _____ is to the left of … [ ] the slope of the _____ is/becomes/increases … [ ] (Custom phrase):	**Directly observable feature** [ ] the _____ appears in the numerator [ ] the _____ is to the left of … [ ] the slope of the _____ is/becomes/increases … [ ] (Custom phrase):	
Inference/interpretation which represents that [ ] when ___ is constant, ___ increases/decreases/stays the same as ___ increases/decreases [ ] when ___ is constant, ___ is proportional to ___ [ ] (Other: Custom phrases):	**Inference/interpretation** which represents that [ ] when ___ is constant, ___ increases/decreases/stays the same as ___ increases/decreases [ ] when ___ is constant, ___ is proportional to ___ [ ] (Other: Custom phrases):	**Checkmark a stem** [ ] So, the student's _____ [ ] So, the _____ from the Internet [ ] So, the _____ **Checkmark a conclusion** [ ] is consistent [ ] is inconsistent **Fill in end of sentence** with my reasoning from part ___.

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Identify one aspect of the student's reasoning that is in/correct. Explain your answer.

	They said	Did student's reasoning agree with AP Physics knowledge?	AP Physics knowledge said
[ ]	The student is correct to argue/use the idea that _____.	because	according to _____, _____ so it should **indeed** be that _____ (in the most extreme situations, you could insert a filled-in short-form REASoN template from above, but see whether a short phrase will suffice).
[ ]	The student is incorrect to argue/use the idea that _____.	because, in contrast,	according to _____, _____ so it should **instead** be the case that _____ (in the most extreme situations, you could insert a filled-in short-form REASoN template from above, but see whether a short phrase will suffice).

How does your mathematical work in _____ correct a mistake in/represent a correct feature of the student's reasoning you identified in part ____?

	They said	Did we agree?	I said
	Diagrams/Equations		Diagrams/Equations
[ ]	The student's correct reasoning/claim that _____	is represented	in my reasoning in part ____ by the fact that _____
[ ]	The student's incorrect reasoning/claim that _____	is corrected	in my reasoning in part ____ by the fact that I didn't write _____, but, rather, _____.