Phases of Matter CAPI Table

This reflects the CAPI in the current version of the sim on 10/8/18.

Object	Property	CAPI Name	Type (Valid Values)	Read/Write	User Interface Element	Default	Notes	Warnings
Header	Select planet	planetSelect	enum (Mercury, Venus, Earth, Moon, Mars)	rw	dropdown menu	Earth		
	Enable/disable planet selector	planetSelectEnabled	true/false	rw	(none)	true		
	Planet selector visible	planetSelectVisible	true/false	rw	(none)	true		
	The planets that are available for students to actually access	planetAvailable	array	rw	(none)	all planets currently in library		
	Select material	materialSelect	enum (water, carbon dioxide, methane)	rw	dropdown menu	water		
	Enable/disable material selector	materialSelectEnabled	true/false	rw	(none)	true		
	Material selector visible	materialSelectVisible	true/false	rw	(none)	true		

	The materials that are available for students to actually access	materialAvailable	array	rw	(none)	all materials currently in library		
	Select material phase	phaseSelect	enum (none, solid, liquid, gas)	rw	buttons	none		
	Enable/disable material phase selector	phaseSelectEnabled	true/false	rw	(none)	true		
	Phase selector visible	phaseSelectVisible	true/false	rw	(none)	true		
	Clear all data from the planet	clearData	true/false	rw	button	false		
Properties	Select temperature unit to display in hover-over	tempSelect	enum (K, F, C)	rw	buttons	K		
	Enable/disable temperature selector	tempSelectEnabled	true/false	rw	(none)	true		
	Temperature selector visible	tempSelectVisible	true/false	rw	(none)	true		
	Select pressure unit to display in hover-over	pressureSelect	enum (atm, pa, bar)	rw	buttons	atm		
	Enable/disable pressure selector	pressureSelectEnabled	true/false	rw	(none)	true		
	Pressure selector visible	pressureSelectVisible	true/false	rw	(none)	true		

	Open/close object properties panel	properties	enum (open, close)	rw	button	close		
	Show/hide object properties panel	propertiesVisible	true/false	rw	(none)	true		
	Enable/disable object properties panel	propertiesEnabled	true/false	rw	(none)	true		
	P-T Chamber visible	chamberVisible	true/false	rw	(none)	true		
	P-T Chamber temperature value in Kelvin	tempSlider	float (0 to 800)	rw	slider/text box	300		
	P-T Chamber enable/disable temperature slider	tempSliderEnabled	true/false	rw	(none)	true		
	P-T Chamber Pressure value in atmsopheres	pressureSlider	float (1e-13 to 1000)	rw	slider/text box	1		
	P-T Chamber Enable/disable pressure slider	pressureSliderEnabled	true/false	rw	(none)	true		
	Rotation speed of the object	autoRotation	enum (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100)	rw	slider	0		
	Rotation speed slider visible	autoRotationVisible	true/false	rw	(none)	true		
	Enable/disable rotation speed slider	autoRotationEnabled	true/false	rw	(none)	true		

Graph	Clear polygon student has drawn on graph	clearPolygon	enum (liquid, solid, gas)	rw	button	false		
	Clear all polygons student has drawn on graph	clearAllPolygons	true/false	rw	(none)	false		
	Percentage of the selected phase area covered by the polygon, which is required for the student to move on	allDataThreshold	number	rw	(none)	70		
	Show official phase lines on phase diagram	showPhaseLines	true/false	rw	(none)	true		
	Indicates which phase polygon has been selected on the graph	activePhase	enum (liquid, solid, gas)	rw	button	none		
	Expand/shrink graph to full-sim	graphExpand	enum (closed, small, medium, fullWidth)	rw	button	closed		
	Show/hide expand/shrink button	graphExpandVisible	true/false	rw	(none)	true		
	Indicates if the liquid polygon has been drawn	liquid.isPlotted	true/false	rw	(none)	false		

	Indicates if the liquid polygon overlaps any other polygon	liquid.isOverlapping	true/false	rw	(none)	false		
	Indicates if the liquid polygon contains all of the liquid data points	liquid.containsAllData	true/false	rw	(none)	false		
	Indicates the percentage of liquid data points required to be contained within the polygon	liquid.requiredData	number	rw	(none)	0		
	Indicates if the polygon contains only liquid data points	liquid.containsSamePhase	true/false	rw	(none)	false		
	Indicates if the solid polygon has been drawn	solid.isPlotted	true/false	rw	(none)	false		
	Indicates if the solid polygon overlaps any other polygon	solid.isOverlapping	true/false	rw	(none)	false		
	Indicates if the solid polygon contains all of the solid data points	solid.containsAllData	true/false	rw	(none)	false		

	Indicates the percentage of solid data points required to be contained within the polygon	solid.required Data	number	rw	(none)	0		
	Indicates if the polygon contains only solid data points	solid.containsSamePhase	true/false	rw	(none)	false		
	Indicates if the gas polygon has been drawn	gas.isPlotted	true/false	rw	(none)	false		
	Indicates if the gas polygon overlaps any other polygon	gas.isOverlapping	true/false	rw	(none)	false		
	Indicates if the gas polygon contains all of the gas data points	gas.containsAllData	true/false	rw	(none)	false		
	Indicates the percentage of gas data points required to be contained within the polygon	gas.requiredData	number	rw	(none)	0		
	Indicates if the polygon contains only gas data points	gas.containsSamePhase	true/false	rw	(none)	false		

Planet	Number of data points on Mercury for the selected material	mercury.observedUnique	number	r	(none)	(automatic)		
	Phases and phase transitions that a student has observed on Mercury for the selected material	mercury.ObservedPhases	array (s-s, s-l, s-l-g, s-g, l-l, l-s, l-g, g-g, g-l, g-l-s, g-s)	rw	(none)	(automatic)	These are the abbreviations for water transitions in the standard displayed area for the sim (s = Solid I, l = Liquid, g = Gas). Observed Phases also MUST include all the intermediate phases that the sample passes through. It is an important learning objective for students to realize that the gas-ice transition passes through the LIQUID phase on the Earth, but not on the Moon. Therefore, we need to detect that the students have actually completed the necessary observations, hence the necessity to record s-l-g in addition to s-g.	
	Number of data points on Venus for the selected material	venus.observedUnique	number	r	(none)	(automatic)		

	Phases and phase transitions that a student has observed on Venus for the selected material	venus.ObservedPhases	array (s-s, s-l, s-l-g, s-g, l-l, l-s, l-g, g-g, g-l, g-l-s, g-s)	rw	(none)	(automatic)	These are the abbreviations for water transitions in the standard displayed area for the sim (s = Solid I, l = Liquid, g = Gas). Observed Phases also MUST include all the intermediate phases that the sample passes through. It is an important learning objective for students to realize that the gas-ice transition passes through the LIQUID phase on the Earth, but not on the Moon. Therefore, we need to detect that the students have actually completed the necessary observations, hence the necessity to record s-l-g in addition to s-g.	
	Number of data points on Earth for the selected material	earth.observedUnique	number	r	(none)	(automatic)		

	Phases and phase transitions that a student has observed on Earth for the selected material	earth.ObservedPhases	array (s-s, s-l, s-l-g, s-g, l-l, l-s, l-g, g-g, g-l, g-l-s, g-s)	rw	(none)	(automatic)	These are the abbreviations for water transitions in the standard displayed area for the sim (s = Solid I, l = Liquid, g = Gas). Observed Phases also MUST include all the intermediate phases that the sample passes through. It is an important learning objective for students to realize that the gas-ice transition passes through the LIQUID phase on the Earth, but not on the Moon. Therefore, we need to detect that the students have actually completed the necessary observations, hence the necessity to record s-l-g in addition to s-g.	
	Number of data points on the Moon for the selected material	moon.observedUnique	number	r	(none)	(automatic)		

	Phases and phase transitions that a student has observed on the Moon for the selected material	moon.ObservedPhases	array (s-s, s-l, s-l-g, s-g, l-l, l-s, l-g, g-g, g-l, g-l-s, g-s)	rw	(none)	(automatic)	These are the abbreviations for water transitions in the standard displayed area for the sim (s = Solid I, l = Liquid, g = Gas). Observed Phases also MUST include all the intermediate phases that the sample passes through. It is an important learning objective for students to realize that the gas-ice transition passes through the LIQUID phase on the Earth, but not on the Moon. Therefore, we need to detect that the students have actually completed the necessary observations, hence the necessity to record s-l-g in addition to s-g.	
	Number of data points on Mars for the selected material	mars.observedUnique	number	r	(none)	(automatic)		

	Phases and phase transitions that a student has observed on Mars for the selected material	mars.ObservedPhases	array (s-s, s-l, s-l-g, s-g, l-l, l-s, l-g, g-g, g-l, g-l-s, g-s)	rw	(none)	(automatic)	These are the abbreviations for water transitions in the standard displayed area for the sim (s = Solid I, l = Liquid, g = Gas). Observed Phases also MUST include all the intermediate phases that the sample passes through. It is an important learning objective for students to realize that the gas-ice transition passes through the LIQUID phase on the Earth, but not on the Moon. Therefore, we need to detect that the students have actually completed the necessary observations, hence the necessity to record s-l-g in addition to s-g.	
	Set the orientation of the object	rotationPreset	enum (dayside, nightside, northpole, southpole)	rw	(none)	none		