

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

— LIGO —

CALIFORNIA INSTITUTE OF TECHNOLOGY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Educational Assessments

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LIGO Concepts Self Awareness Assessments

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Name _____

Process Skills: Self Awareness

For the following concepts about *exploring questions* (process skills), check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Observing</i>					
<i>Hypothesizing</i>					
<i>Predicting</i>					
<i>Investigating</i>					
<i>Interpreting</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Observing</i>					
<i>Hypothesizing</i>					
<i>Predicting</i>					
<i>Investigating</i>					
<i>Interpreting</i>					

Name _____

Scientific Method: Self Awareness

For the following concepts about the *scientific method*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Control</i>					
<i>Variable</i>					
<i>Hypothesis</i>					
<i>Theory</i>					
<i>Experiment</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Control</i>					
<i>Variable</i>					
<i>Hypothesis</i>					
<i>Theory</i>					
<i>Experiment</i>					

Name _____

The Metric System: Self Awareness

For the following concepts about the *metric system*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Liter</i>					
<i>Meter</i>					
<i>Nanometer</i>					
<i>Gram</i>					
<i>Kilogram</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Liter</i>					
<i>Meter</i>					
<i>Nanometer</i>					
<i>Gram</i>					
<i>Kilogram</i>					

Name _____

Sound and Waves: Self Awareness

For the following concepts about *sound and waves*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Pitch</i>					
<i>Volume</i>					
<i>Frequency</i>					
<i>Amplitude</i>					
<i>Wavelength</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Pitch</i>					
<i>Volume</i>					
<i>Frequency</i>					
<i>Amplitude</i>					
<i>Wavelength</i>					

Name _____

Interference: Self Awareness

For the following concepts about *interference*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Reflection</i>					
<i>Refraction</i>					
<i>Diffraction</i>					
<i>Interference</i>					
<i>Focal point</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Reflection</i>					
<i>Refraction</i>					
<i>Diffraction</i>					
<i>Interference</i>					
<i>Focal point</i>					

Name _____

Optics: Self Awareness

For the following concepts about *optics*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Reflection</i>					
<i>Refraction</i>					
<i>Diffraction</i>					
<i>Interference</i>					
<i>Focal point</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Reflection</i>					
<i>Refraction</i>					
<i>Diffraction</i>					
<i>Interference</i>					
<i>Focal point</i>					

Name _____

Kinematics: Self Awareness

For the following concepts about *kinematics*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Velocity</i>					
<i>Acceleration</i>					
<i>Energy</i>					
<i>Mass</i>					
<i>Weight</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Velocity</i>					
<i>Acceleration</i>					
<i>Energy</i>					
<i>Mass</i>					
<i>Weight</i>					

Name _____

Gravity and Relativity: Self Awareness

For the following concepts about *gravity and Relativity*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Gravitational field</i>					
<i>Gravitational force</i>					
<i>Space-time</i>					
<i>Geodesic</i>					
<i>Speed of light</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Gravitational field</i>					
<i>Gravitational force</i>					
<i>Space-time</i>					
<i>Geodesic</i>					
<i>Speed of light</i>					

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Astronomy: Self Awareness

For the following concepts about *astronomy*, check the – box if you are not confident in your understanding of the concept, the ✓ box if you feel you have some knowledge about the concept or the + box if you are confident enough about the concept that you would feel comfortable explaining it to someone else. Then try to give examples and a definition of the concept. Feel free to make guesses if you are unsure.

We will do this activity before and after we explore the concepts to see how our understanding develops.

Before:

Concept	-	✓	+	Example	Definition
<i>Big Bang</i>					
<i>Supernova</i>					
<i>Black hole</i>					
<i>Light year</i>					
<i>Galaxy</i>					

After:

Concept	-	✓	+	Example	Definition
<i>Big Bang</i>					
<i>Supernova</i>					
<i>Black hole</i>					
<i>Light year</i>					
<i>Galaxy</i>					