Textbook Alignment to the Utah Physics Core Curriculum Rubric

Title	itle ISBN#					
Publisher:						
Name of Person(s) conduct	ing alignment and evaluation	::				
Overall percentage of cove	rage of the Utah State Core C	Curriculum:%				
Standard I: Students will u time, velocity, and accelera	inderstand how to measure, c ition.	alculate, and describe the motion of an	object in terms of position,			
Percentage of coverage for	Standard I: %					
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage			
Objective 1.1: Describe the motion of an object in terms of position, time, and velocity.	a. Calculate the average velocity of a moving object using data obtained from measurements of position of the object at two or more times.					
	 b. Distinguish between distance and displacement. c. Distinguish between anad and valuative 					
	d. Determine and compare the average and instantaneous velocity of an					

	object from data showing its	
	position at given times.	
	e. Collect, graph, and	
	interpret data for position	
	vs. time to describe the	
	motion of an object and	
	compare this motion to the	
	motion of another object.	
Objective 1.2: Analyze	a. Determine the average	
the motion of an object in	acceleration of an object	
terms of velocity, time,	from data showing velocity	
and acceleration.	at given times.	
	b. Describe the velocity of	
	an object when its	
	acceleration is zero.	
	c. Collect, graph, and	
	interpret data for velocity	
	vs. time to describe the	
	motion of an object.	
	d. Describe the acceleration	
	of an object moving in a	
	circular path at constant	
	speed (i.e., constant speed,	
	but changing direction).	
	e. Analyze the velocity and	
	acceleration of an object	
	over time.	
Objective 1.3: Relate the	a. Compare the motion of an	
motion of objects to a	object relative to two frames	
frame of reference.	of reference.	
	b. Predict the motion of an	
	object relative to a different	
	frame of reference (e.g., an	
	object dropped from a	
	moving vehicle observed	

	for a the second state of the second state of		
	from the vehicle and by a		
	person standing on the		
	sidewalk).		
	c. Describe how selecting a		
	specific frame of reference		
	can simplify the description		
	of the motion of an object.		
Objective 1.4: Use	a. Describe the motion of a		
Newton's first law to	moving object on which		
explain the motion of an	balanced forces are acting.		
object.	b. Describe the motion of a		
-	stationary object on which		
	balanced forces are acting.		
	c. Describe the balanced		
	forces acting on a moving		
	object commonly		
	encountered (e.g., forces		
	acting on an automobile		
	moving at constant velocity,		
	forces that maintain a body		
	in an upright position while		
	walking).		
Standard II: Students will	understand the relation betw	een force, mass, and acceleration.	
		, ,	
Percentage of coverage for	Standard II: %		
Objectives	Indicators	If	C
-		II covered, appropriate page #'s	Comments on coverage
Objective 2.1: Analyze	a. Observe and describe		
forces acting on an	forces encountered in		
object.	everyday life (e.g., braking		
	of an automobile – friction,		
	falling rain drops – gravity,		
	directional compass –		
	magnetic, bathroom scale –		
	elastic or spring).		

	b. Use vector diagrams to	
	represent the forces acting	
	on an object.	
	c. Measure the forces on an	
	object using appropriate	
	tools.	
	d. Calculate the net force	
	acting on an object.	
Objective 2.2: Using	a. Determine the	
Newton's second law,	relationship between the net	
relate the force, mass,	force on an object and the	
and acceleration of an	object's acceleration.	
object.	b. Relate the effect of an	
	object's mass to its	
	acceleration when an	
	unbalanced force is applied.	
	c. Determine the	
	relationship between force,	
	mass, and acceleration from	
	experimental data and	
	compare the results to	
	Newton's second law.	
	d. Predict the combined	
	effect of multiple forces	
	(e.g., friction, gravity, and	
	normal forces) on an	
	object's motion.	
Objective 2.3: Explain	a. Identify pairs of forces	
that forces act in pairs as	(e.g., action-reaction, equal	
described by Newton's	and opposite) acting	
third law.	between two objects (e.g.,	
	two electric charges, a book	
	and the table it rests upon, a	
	person and a rope being	
	pulled).	

	b. Determine the magnitude	
	and direction of the acting	
t	force when magnitude and	
	direction of the reacting	
t	force is known.	
	c. Provide examples of	
	practical applications of	
]	Newton's third law (e.g.,	
1	forces on a retaining wall,	
1	rockets, walking).	
	d. Relate the historical	
	development of Newton's	
]	laws of motion to our	
	current understanding of the	
1	nature of science (e.g.,	
	based upon previous	
]	knowledge, empirical	
	evidence, replicable	
	observations, development	
	of scientific law).	

Standard III: Students will understand the factors determining the strength of gravitational and electrical forces.

Percentage of coverage for Standard III: %

Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 3.1: Relate the	a. Investigate how mass		
strength of gravitational	affects the gravitational		
force to the distance	force (e.g., spring scale,	ale,	
between two objects and	balance, or other method of		
the mass of objects (i.e.,	finding a relationship		
Newton's law of	between mass and the		
universal gravitation).	gravitational force).		
	b. Distinguish between mass		
	and weight.		

		1	
	c. Describe how distance		
	between objects affects the		
	gravitational force (e.g.,		
	effect of gravitational forces		
	of the moon and sun on		
	objects on Earth).		
	d. Explain how evidence		
	and inference are used to		
	describe fundamental forces		
	in nature, such as the		
	gravitational force.		
	e. Research the importance		
	of gravitational forces in the		
	space program.		
Objective 3.2: Describe	a. Relate the types of charge		
the factors that affect the	to their effect on electric		
electric force (i.e.,	force (i.e., like charges		
Coulomb's law).	repel, unlike charges		
	attract).		
	b. Describe how the amount		
	of charge affects the electric		
	force.		
	c. Investigate the		
	relationship of distance		
	between charged objects		
	and the strength of the		
	electric force.		
	d. Research and report on		
	electric forces in everyday		
	applications found in both		
	nature and technology (e.g.,		
	lightning, living organisms,		
	batteries, copy machine,		
	electrostatic precipitators).		
Standard IV: Students will	l understand transfer and conservation of energy		

Percentage of coverage for Standard IV: %						
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage			
Objective 4.1: Determine	a. Identify various types of					
the kinetic and potential	potential energy (i.e.,					
energy in a system.	gravitational, elastic,					
	chemical, electrostatic,					
	nuclear).					
	b. Calculate the kinetic					
	energy of an object given					
	the velocity and mass of the					
	object.					
	c. Describe the types of					
	energy contributing to the					
	total energy of a given					
	system.					
Objective 4.2: Describe	a. Describe a closed system					
conservation of energy in	in terms of its total energy.					
terms of systems.	b. Relate the					
	transformations between					
	kinetic and potential energy					
	in a system (e.g., moving					
	magnet includes electricity					
	in a coil of wire, roller					
	coaster, internal combustion					
	engine).					
	c. Gather data and calculate					
	the gravitational potential					
	energy and the kinetic					
	energy of an object (e.g.,					
	pendulum, water flowing					
	downhill, ball dropped from					
	a height) and relate this to					

	the conservation of energy		
	of a system.		
	d. Evaluate social,		
	economic, and		
	environmental issues related		
	to the production and		
	transmission of electrical		
	energy.		
Objective 4.3: Describe	a. Describe the loss of		
common energy	useful energy in energy		
transformations and the	transformations.		
effect on availability of	b. Investigate the transfer of		
energy.	heat energy by conduction,		
	convection, and radiation.		
	c. Describe the		
	transformation of		
	mechanical energy into		
	electrical energy and the		
	transmission of electrical		
	energy.		
	d. Research and report on		
	the transformation of energy		
	in electrical generation		
	plants (e.g., chemical heat		
	to electricity, nuclear to heat		
	to mechanical to electrical,		
	gravitational to kinetic to		
	mechanical to electrical),		
	and include energy losses		
	during each transformation.		
Standard V: Students will	understand the properties an	d application of waves.	
Percentage of coverage for	Standard V: %		
	Indicators	If covered, appropriate page #'s	Comments on coverage
Objectives			

Objective 5.1:	a. Differentiate between	
Demonstrate an	period, frequency,	
understanding of	wavelength, and amplitude	
mechanical waves in	of waves.	
terms of general wave	b. Investigate and compare	
properties.	reflection, refraction, and	
	diffraction of waves.	
	c. Provide examples of	
	waves commonly observed	
	in nature and/or used in	
	technological applications.	
	d. Identify the relationship	
	between speed, wavelength,	
	and frequency of a wave.	
	e. Explain the observed	
	change in frequency of a	
	mechanical wave coming	
	from a moving object as it	
	approaches and moves away	
	(i.e., Doppler effect).	
	f. Explain the transfer of	
	energy through a medium	
	by mechanical waves.	
Objective 5.2: Describe	a. Describe the relationship	
the nature of	of energy to wavelength or	
electromagnetic radiation	frequency for	
and visible light.	electromagnetic radiation.	
	b. Distinguish between the	
	different parts of the	
	electromagnetic spectrum	
	(e.g., radio waves and x-	
	rays or visible light and	
	microwaves).	
	c. Explain that the different	

parts of the electromagnetic	
spectrum all travel through	
empty space and at the same	
speed.	
d. Explain the observed	
change in frequency of an	
electromagnetic wave	
coming from a moving	
object as it approaches and	
moves away (i.e., Doppler	
effect, red/blue shift).	
e. Provide examples of the	
use of electromagnetic	
radiation in everyday life	
(e.g., communications,	
lasers, microwaves, cellular	
phones, satellite dishes,	
visible light).	

General Rubric

Review Category Curriculum Content Coverage	High Quality - 3	2	1	0	NA	Comments
Content matches the standards and objectives of the Utah Core Curriculum.	80% of the Utah Core and objectives are covered. Objectives are clearly stated with measurable outcomes.	70% of the Utah Core and objectives are covered. Objectives are clearly stated with measurable outcomes.	50% of the Utah Core and objectives are covered.	Less than 50% of the Utah Core and objectives are covered		
Content is delivered in an appropriate sequence.	80% of the program content is covered in an appropriate sequence matching the Utah Core.	70% of the program content is covered in an appropriate sequence matching the Utah Core.	50% of the program content is covered in an appropriate sequence matching the Utah Core.	Less than 50% of the program content is covered in an appropriate sequence matching		

				the Utah Core	
				the Otali Cole.	
Content is covered with appropriate depth.	The program provides 80% or more of the necessary depth needed for appropriate instruction.	The program provides 70% or less of the necessary depth needed for appropriate instruction.	The program provides 50% or less of the necessary depth needed for appropriate instruction.	The program lacks the necessary depth needed for appropriate instruction.	
Content endorses sound research-based practices.	The program utilizes 80% or more of current research-based practices.	The program utilizes 70% or less of current research- based practices.	The program utilizes 50% or less of current research-based practices.	The program does not utilize current research-based practices.	
Content is presented accurately and in an age-appropriate manner.	Materials reflect current content knowledge without content bias. Materials utilize cross-curricular references and experiences. Materials are age appropriate.	Materials have some content inaccuracies, but do not show content bias. Materials utilize some cross- curricular references. Materials are 70% age appropriate	Materials show many content inaccuracies and some content bias. Materials have very limited cross curricular references. Materials are approximately 50% age appropriate.	Materials have major content inaccuracies. Materials have no cross curricular references. Materials are not age appropriate.	
Content is engaging to the student.	80% or more of the materials and activities are interesting and engaging to the student promoting purposeful learning.	Less than 80% of the materials and activities are interesting and engaging to the student promoting purposeful learning.	50% or less of the materials and activities are interesting and engaging to the student promoting purposeful learning.	Very little, if any, of the materials and activities are interesting and engaging to the student promoting purposeful learning.	
Content is differentiated to meet different abilities and needs.	There are appropriate accommodations for various	70% of the program provides appropriate accommodations for various	50% of the program provides appropriate accommodations for various	There are few or no appropriate accommodations for various	

	developmental levels acknowledging prerequisite skills and knowledge.	developmental levels acknowledging prerequisite skills and knowledge.	developmental levels acknowledging prerequisite skills and knowledge.	developmental levels with little acknowledgment of needed prerequisite skills and knowledge.		
Review Category Physical Qualities	High Quality - 3	2	1	0	NA	Comments
Student materials provide appropriate print, illustrations and text features.	Student materials provide appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	70% of the student material provides appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	50% of the student material provides appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	The student materials lack appropriate use of font, illustrations, and text features, (e.g., illustrations, graphs, tables).		
Student materials provide table of contents, glossary, index, and etc.	Student materials provide necessary table of contents, indicies, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide some table of contents, indicies, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide a limited amount of table of contents, indicies, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide very little, if any, table of contents, indicies, glossaries, and other references to assist and guide students, parents, and teachers.		
Student materials are durable.	Student materials are securely bound and reinforced.	Student materials are adequately hardbound.	Student materials have secure bindings.	Student materials have inferior bindings.		
Teacher materials are easy to use.	Teacher materials are well organized with easy to read font and good correlation with student materials.	Teacher materials are organized with easy to read font, and follow correlation with student materials.	Teacher materials are somewhat organized with hard to read font and layout. Materials provide difficult to follow correlation with student materials.	Materials are disorganized with hard to read font for teachers. Layout provides little or no correlation to student materials.		

Teacher material is durable.	Teacher materials are securely bound and reinforced while staying open and flat for teaching.	Teacher materials are adequately hardbound while staying open and flat for teaching	Teacher materials have secure bindings but do not open and lay flat to facilitate teaching.	Teacher materials have inferior bindings but do lay flat to facilitate teaching.		
Review Category Technology Qualities	High Quality - 3	2	1	0	NA	Comments
Technology provided is user friendly.	Program provides menus that are easy to read and follow. Program is user- friendly to install and requires a minimal level of computer expertise. Manuals and directions are understandable.	Program provides menus that are generally easy to read and follow. Installation requires little computer expertise. Manuals and directions are simple to understand.	Program menus are easy to read. Manuals might have to be read in detail to understand operation of technology, (e.g., laser remote, software). Installation might require some knowledge or expertise. Manuals are included.	Menus are not descriptive and hard to follow. Installation requires expertise. No manuals or written instructional materials are provided.		
Technology provided enhances the learning experience.	Technology provided is appropriate giving additional support for student learning.	Technology provided is appropriate giving some additional support for student learning.	Limited technology is provided giving little support for student learning.	No technology is provided.		
Technology has quality audio/visual attributes.	Program provides high quality audio and visual effects.	Program provides good audio and visual effects.	Program audio and visual effects are of poor quality.	No technology is available.		
Review Category Ancillary Materials	High Quality - 3	2	1	0	NA	Comments
Student ancillary materials provide appropriate	Program provides high quality student ancillary materials	Program provides adequate student ancillary materials	Program provides some student ancillary materials	The program provides no student ancillary materials		

supplemental instruction.	that enhance and supplement the delivery of instruction.	to enhance and supplement the delivery of instruction.	that are of limited value to supplement and enhance the delivery of instruction.	or student ancillary materials are of such poor quality and have little correlation to learning objectives that they are of no value.		
Student ancillary materials are easy to access and utilize.	Student ancillary materials are easy to access, are durable and easy to utilize.	Student ancillary materials are easy to access, are somewhat durable requiring some modification to utilize.	Student ancillary materials are difficult to access and require modification to utilize.	Student ancillary materials are of such poor quality or difficult to prepare or access that they are of little or no value.		
Parent ancillary materials are appropriate and support desired student learning	Parent ancillary materials are appropriate providing good support for desired student learning through home activities, homework, and practice opportunities.	Parent ancillary materials are appropriate providing adequate support for desired student learning through a variety of opportunities and activities.	Parent ancillary materials are not always appropriate nor do they provide adequate support through a variety of opportunities for student learning.	There are no parent ancillary materials available.		
Review Category Assessment Materials	High Quality - 3	2	1	0	NA	Comments
A variety of assessment options are provided.	Program provides multiple assessment measures to monitor individual student progress at regular intervals.	Program provides some assessment measures to monitor individual student progress at regular intervals.	Program provides limited assessment measures to monitor individual student progress at regular intervals.	Program provides no assessment measures or measures are of such poor quality or correlation to student learning to be of any value.		

Assessment tools are appropriate to inform instruction and are aligned with the program, the Utah Core curriculum, and U- PASS.	Assessment tools are appropriate to inform the major areas of instruction and are aligned with the program and the Utah Core curriculum and U- PASS.	Assessment tools are appropriate to inform some areas of the instructional program and are adequately aligned with the program and the Utah Core curriculum and U-PASS.	Assessment tools are appropriate to inform limited areas of the instructional program and are poorly aligned with the program and the Utah Core curriculum and U-PASS.	Assessment tools are not appropriate to inform areas of the instructional program and are not aligned with the program and the Utah Core curriculum and U- PASS.		
Assessment tools are easily accessible and utilized.	Assessment tools are easily accessible with a limited amount of training or expertise.	Assessment tools are accessible with some amount of training or expertise needed.	Assessment tools are difficult to access and require extensive training.	Assessment tools are not accessible.		
Category Universal Access	High Quality - 3	2	1	0	NA	Comments
Program content accurately reflects diverse populations.	Program provides ways to adapt curriculum for all students, (e.g., special learning needs, learning disabilities, ELL, and advanced learners).	Program provides some ways to adapt curriculum to meet special learning needs of students.	Program provides limited strategies to assist special learning needs of students.	Program provides no strategies to assist special learning needs of students.		
Program contents provides for the development of healthy attitudes and values.	Program accurately portrays and promotes understanding of cultural, racial, religious and diversity in society.	Program accurately portrays and promotes some understanding of cultural, racial, religious and diversity in society.	Program accurately portrays and promotes a limited understanding of cultural, racial, religious and diversity in society.	Program does not accurately portray or promote an understanding of cultural, racial, religious and diversity in society.		

I have reviewed the above program and recommend the following use: (Choose one category only.)

- (1) Instructional materials are in alignment with content philosophy and instructional strategies of the Utah Core. Materials provide comprehensive coverage of course content and support U-PASS. Materials may be used for **primary course instruction**.
- (2) Instructional materials provide limited alignment with the Utah Core or U-PASS or have a narrow or restricted scope and sequence. Use of these materials must be supplemented with necessary missing program elements for effective instruction. Materials may be used on a **limited basis with accompanying plan** for use with additional appropriate materials to assure coverage of core requirements.
 - □ Materials could be used to support primary course instruction Tier I of the Utah Model for Instruction and Intervention.
 - Materials could be used to support intervention instruction Tier II of the Utah Model for Instruction and Intervention.
 - □ Materials could be used to support intervention instruction **Tier III** of the **Utah Model for instruction and Intervention**.

(3) Materials are not for student instructional use, but may only be used only as teacher resource material.

(4) Materials are aligned to the core, developmentally appropriate, may contain valuable content information, but are not intended to be used as the source for primary instruction, but **only as student resource material**.

Materials have been reviewed, but **not adopted** because of lack of alignment, inaccurate content, misleading connotations, undesirable presentation, or are in conflict with existing law and rules, or otherwise unsuitable for use by students. School districts are strongly cautioned against using these materials. Materials were included in the publisher bid, but **not sampled** to the USOE or Textbook commission.

Materials were not reviewed, but may be purchased in accordance with the law and Rule 277-469-6: Advanced placement materials, International materials, concurrent enrollment materials, library or trade books, reference materials, teacher professional materials which are not components of an integrated instructional program. Galley proofs or unfinished copies are not reviewed.

Evaluator Signature:

П

Date: _____