Khan Academy Video Correlation / Alignment
Physics

TEKS/SE	Curriculum Unit(s)	Video Title	Rationale (e.g., explanation, justification, etc.)
® **PHYS.4A** Generate and interpret graphs and charts describing different types of motion including the use of real-time technology such as motion detectors and photogates.	Unit 1	A-2 Why Distance is Area Under Velocity-Time Line	This video explains the area under the curve of a velocity-time graph, but I am concerned that a student would be confused with the notation that does not correspond to the one on the EOC physics chart, although it is the one used for AP physics problems.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration.	Unit 2	A-3 Introduction to Vectors and Scalars	This video describes the differences between vectors and scalars, comparing magnitude only to magnitude and direction; very good and easy to understand. Also the video explains the difference between distance and displacement, and velocity and speed.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-4 Calculating Average Velocity or Speed	This is an easy to follow solution to a problem, my only concern is the notation used, which is not the notation on our STAAR Physics chart.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-5 Solving for Time	The video follows the process of solving for time in a word problem context; it gives options on substituting first and then solving, or solving and then substituting values from the equation. Great for a brief explanation of dimensional analysis.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-6 Displacement from Time and Velocity Example	This is a very good and to the point explanation on how to solve a problem to find displacement given time and velocity.
® **PHYS.4B** Describe and	Unit 2	A-7 Acceleration	Good problem that deals with the concept of acceleration, explains the concept of acceleration through the problem.

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analyze motion in one dimension using equations with the concepts of distance			Even when the units used might be confusing for the student, in the end, this video is helpful in the understanding of acceleration.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-15 Airbus A380 Take-Off Time	This video includes a great explanation on how long it takes for an Airbus A380 to take off. Good real life example that students would appreciate.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-16 Airbus A380 Take-Off Distance	This video includes a great explanation on how long the runway should be for an Airbus A380 to take off. Good real life example that students would appreciate.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-17 Average Velocity for Constant Acceleration	This video shows the use of a velocity-time graph in a great example that connects common sense to the traditional equations or formulas. Good for revisiting the concept or missed lesson.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-18 Acceleration of Aircraft Carrier Takeoff	The inclusion of the derivation of the displacement equation, one that includes acceleration and time change, will help the higher-level courses students to review the concept, but might confuse the students that are trying to understand this concept and problem.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-19 Race Cars with Constant Speed Around Curve	This video explains through an example, the centripetal acceleration, the change in velocity due to change in the direction, and relates the change of the direction of the velocity to the acceleration towards the center of the curve.
® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-24 Deriving Displacement as a Function of Time, Acceleration, and Initial Velocity	This video explains how to derive the equation for displacement as a function of initial velocity, acceleration, and time. This is a good exercise to follow for the students that are taking higher-level physics courses and a great extension for students in general.

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® **PHYS.4B** Describe and analyze motion in one dimension using equations with the concepts of distance	Unit 2	A-28 Impact Velocity from Given Height	This is another video that explains the derivation of the equation for a specific case of free fall that has an initial velocity of 0. Good for an extension assignment or for students that take higher-level physics courses.
⑤ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-1 Relationship Between Angular Velocity and Speed	This is a great explanation of angular velocity, but goes a little to deep for the purpose of the physics EOC.
⑤ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-22 Gravity for Astronauts in Orbit	This video gives a fantastic representation of why there is a sense of no gravity when astronauts are in space given that they are still affected by gravity. Great for an explanation, clarification or extension for free fall.
⑤ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-25 Plotting Projectile Displacement, Acceleration, and Velocity	In this video, the students can learn, practice, or review plotting on three different types of graphs: displacement, velocity, and acceleration versus time. Good for an extension assignment after just having sketched graphs.
⑤ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-26 Projectile Height Given Time	The video covers all the necessary steps to calculate the height, given the time of an object during projectile motion. It includes a bit of equation derivation, which could be confusing if the student just requires application of the equations, but it could be helpful for students to visualize all the process.
⑤ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-27 Deriving Max Projectile Displacement Given Time	Great video for an extension on specific problems where some parameters are considered, as is the no air resistance and having the time an object has been in the air during projectile motion on Earth.

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Ⓢ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-29 Visualizing Vectors in 2 Dimensions	This video will help students review a lesson for dealing with vectors in two dimensions. Very good explanation of this skill.
Ⓢ **PHYS.4C** Analyze and describe accelerated motion in two dimensions using equations including projectile and circular examples.	Unit 6	A-30 Projectile at an Angle	This video is a great simple explanation on how to find the time a projectile is in the air when launched at an angle, and how to find the displacement, in the horizontal direction, that the projectile will have. Good for review, initiate discussion, and for practice.
Ⓡ **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-8 Balanced and Unbalanced Forces	Very easy to understand explanation of net force, and the difference between balanced and unbalanced forces. Great guide to show free body diagrams for forces.
Ⓡ **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-9 Unbalanced Forces and Motion	Through four statements this video explains motion. I would even use this as part of an opening question or statement.
Ⓡ **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-10 Newton's 1st Law of Motion	A video that includes a little more explanation on Newton's 1st Law of Motion, great for concept review or for missed lessons.
Ⓡ **PHYS.4D** Calculate the effect of forces on objects	Unit 4	A-11 Newton's First Law of Motion Concepts	More on Newton's 1st law analyzing some statements and free body diagrams. Good for review and for when students miss the lesson, or a part of the lesson. It explains the

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including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.			concepts very clearly although not deeply, as they would be explained in detail in a different video.
® **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-12 Newton's First Law of Motion	This video is another explanation of Newton's first law, and includes analysis with free body diagrams. Another video that could be used to refresh the concept, or to think about the concept as review.
® **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-13 Newton's Second Law of Motion	Great explanation that talks about the force equals mass times acceleration equation, the video talks about it being a vector, reviews on what mass is, and even works out an example.
® **PHYS.4D** Calculate the effect of forces on objects including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.	Unit 4	A-14 Newton's Third Law of Motion	Great video for explaining Newton's third Law, good examples, good pacing, and great delivery.
Ⓢ **PHYS.4E** Develop and interpret free-body force diagrams.	Unit 5	A-8 Balanced and Unbalanced Forces	Very easy to understand explanation of net force, and the difference between balanced and unbalanced forces. Great guide to show free body diagrams for forces.
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Ⓢ **PHYS.4E** Develop and interpret free-body force diagrams.	Unit 5	A-14 Newton's Third Law of Motion	Great video for explaining Newton's third Law, good examples, good pacing, and great delivery.
Ⓡ **PHYS.5B** Describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.	Unit 3	A-20 Introduction to Gravity	The video starts to explain the force of gravity, talks about the difference in masses and how these relate to the force that two masses exert on each other.
Ⓡ **PHYS.5B** Describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.	Unit 3	A-21 Mass and Weight Clarification	In this video, the students would be able to explore a little more the concept of weight and mass. This is explained through the analysis of the equation for the gravitational force. Great for review and learning or understanding of concept.
Ⓡ **PHYS.5B** Describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between	Unit 3	A-22 Gravity for Astronauts in Orbit	This video gives a fantastic representation of why there is a sense of no gravity when astronauts are in space given that they are still affected by gravity. Great for an explanation, clarification or extension for free fall.

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® **PHYS.5B** Describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers.	Unit 3	A-23 Would a Brick or Feather Fall Faster	This video explains the acceleration due to gravity in an environment that has no air (moon). The time it would take for a heavier object to hit the ground is the same as the time it would take a lighter object given that the gravity is the same. Good explanation for review and for introduction to air resistance.

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