

Physics 11 and 12 Lesson videos created in 2020 and 2021

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Physics 11 level

1. Phys 11 review - Significant Digits review:
<https://www.loom.com/share/3558e6452b7542f8a8b38ddbcbfd1137d?sid=8aee8da9-52c8-4799-a7a3-d9d28510a7e9>
2. Phys 11 review - Equation of line and area under curve:
<https://www.loom.com/share/036c8a9bd81946c58d3da9becf64f699?sid=368e4f39-ef9d-4773-814a-bd730dde2513>
3. Phys 11 review – Kinematics in 1D:
<https://www.loom.com/share/dcefdd7d3f9748fbb5b79620805edee7?sid=b70d394a-93e5-463c-8306-30eb6c5023bc>

Physics 12 level Kinematics

4. Kinematics – Rivers and Airplanes:
<https://www.loom.com/share/afbf20f798594279a6b0c1ee1aa8a447?sid=638300ac-a330-4460-ab64-b4f0339318bc>
5. Kinematics – Projectiles in 2D:
<https://www.loom.com/share/1b1d857b281b4953a77c031f51efd469?sid=c576a4fb-9322-49eb-b06c-dcbd107f7975>

Physics 12 level Dynamics

6. Phys 11 review – Dynamics in 1D:
<https://www.loom.com/share/4336df8ce7c446fdab7819dd854b0138?sid=a851ce25-ff6d-4fc6-b9bc-a160073fc3d5>
7. Lab: Net force in 2 D:
<https://www.loom.com/share/71e02473d7fd4fada83b73a4d287748a?sid=8bfe2d96-5003-4305-9935-f1e37b1c2ddb>
8. Systems of masses – Dynamics – Physics 12 level:
<https://www.loom.com/share/2803644ca7fa4b22ae0978fc41e533f4?sid=421aa8a5-495c-4948-b50e-56c4fb8d6339>

Physics 11 and 12: Work - Energy

9. Physics 11 level work-Energy lesson – Part 1:
<https://www.loom.com/share/a412df9d5dc64a208166f457e681a05c?sid=4b3258d2-a5b5-4610-bdcf-fb8818a81387>

10. Physics 11 level work-Energy lesson – Part 2:
<https://www.loom.com/share/6bff4e04621340cc8b8339164af69be3?sid=cadf38da-286d-4f2b-8462-756e01246d99>
11. Physics 11 and 12 level conservation of mechanical energy with projectiles (example problem):
<https://www.loom.com/share/94ccba0ba12946df9984874795dcd25?sid=10923566-de97-4bf3-9de2-6c074d372eaa>
12. Physics 11: Thermal Energy and Heat:
<https://www.loom.com/share/8e3be49130064408a5f5c4becb87c075?sid=c54b4b8e-b12b-4e33-933a-4767a6af4884>

Static Equilibrium Lesson videos created for AP-1 in Spring 2020

13. **Torque – Introductory Lesson:**
<https://www.loom.com/share/2eec6369d22e452699fdb993bf85a4bf>
14. **Level of difficulty #1 – translational equilibrium – net force = 0N (torque not needed):** Static equilib - Level 1 difficulty - example 1 (translational equilib):
<https://www.loom.com/share/a2e04e4a9f3d445eb8a5260cbe1ba5af>
15. **Level of difficulty #2 – beam and forces perpendicular to each other:** Torque - Level 2: forces perpendicular to moment arm - 9 April, 2020:
<https://www.loom.com/share/380002668eeb47b9bfd7183a5e35b495>
16. **Torque Level 2 - Example 3** - Equilib Practice Probs Pg 1 #1 - 9 April, 2020:
<https://www.loom.com/share/dd484749b70541a2ac45828da3d0b656>
17. **Torque Level 3** - Horizontal or vertical beam with non-perpendicular forces: 9 April, 2020:
<https://www.loom.com/share/8822995d02e1474e84407a1d59f8533a>
18. **Torque Level 3** - Example 2 - Static Equib booklet pg 9 #19 - 9 April, 2020:
<https://www.loom.com/share/5ce5107d5d524916af3c19c8e086068b>
19. **Torque Level 4** difficulty - beam at an angle - 9 April, 2020:
<https://www.loom.com/share/f6d59b6785494183823b804775219910>
20. **Torque Level 4** - example 2 - Static equib booklet pg 13 #4 - 9 April, 2020:
<https://www.loom.com/share/df5bd436d5704401b51cba7fd0c9f293>
21. **Torque - Level 5** difficulty - ladders and similar objects - 9 April, 2020:
<https://www.loom.com/share/d78f56c373a94dfda23544e74351a7f7>

Physics 11 and 12 level Momentum

22. Physics 11 all lessons [Phys 11 - Impulse and Momentum \(with lesson videos\)](#)
23. Lesson video #1 - Conservation of momentum theory with examples, including car crash and bullet/block examples: <https://www.loom.com/share/8740a63a7a764b349c4e163fc512c87b>
24. Lesson video #2 - 3 types of collision: perfectly inelastic, perfectly elastic, partially elastic; Percent elasticity: <https://www.loom.com/share/f0b00c61cd354f35ad44a0f3c8f896c4>
25. Lesson video #3 - Multi-concept problems (including conservation of momentum and conservation of energy: for example, ballistic pendulum):
<https://www.loom.com/share/19ac7ade53e348f891ab90a0defe7e12>
 - Ballisticpendulum(e.g.https://en.wikipedia.org/wiki/Ballistic_pendulum)For fun: Phet simulation - Collisions (this is in 2-D, which is Physic 12 level, but it's still interesting!):
<https://phet.colorado.edu/en/simulation/legacy/collision-lab>
26. Physics 12 – Conservation of Momentum and percent elasticity:
<https://www.loom.com/share/b063cf44082b45afb8f5adcf0510cd83?sid=62b3d632-6e36-4cea-8540-00ba52a079a5>
27. Physics 12 and AP-1 – Conservation of momentum with consideration of Centre of Mass:
<https://www.loom.com/share/69e3150d470b409cb881a189cc632a36?sid=4f0e3fae-76ed-43cf-a058-56c9d339c253>
28. Physics 11 level multi-concept Momentum and cons of energy (also review for Physics 12 students): <https://www.loom.com/share/19ac7ade53e348f891ab90a0defe7e12?sid=5f36695c-7e63-4a53-be81-1f0c2a99a35c>
29. Physics 12 – Conservation of momentum in 2-D problem solving strategies:
<https://www.loom.com/share/4ec9006446ba44c6a5698b39b2a76dd1?sid=c74361cd-af1b-435e-ba9d-b940f2511cc5>
30. Physics 12 – Conservation of momentum in 2-D problem solving strategies – special case:
<https://www.loom.com/share/fa924374327a4fbabd41d4f15d237d1c?sid=1c3f9135-303a-4e08-845b-09c4442107d4>

31. Physics 11 and 12 – Conservation of momentum in 1-D problem solving strategies:
<https://www.loom.com/share/fc466f4dc78e4a4a89e86fc5f6ac0342?sid=6ab6956e-51cd-4773-8b00-fb4efa61906f>
32. Physics 11 and 12 – Conservation of momentum in 1-D and 2-D problem solving strategies:
<https://www.loom.com/share/4259997a29c840398a98bd7a157a8a48?sid=cd76b054-f8e1-4abb-b274-84994c902023>
33. Momentum Lab Part A:
<https://www.loom.com/share/9be81f17e8f5476682fa11f9412ccd56?sid=982181a6-72a1-4fa5-a6d7-a52e0b7b2447>

Physics 12: Circular Motion

Links to video lessons for Uniform Circular Motion - Chapter 5

Theory – centripetal acceleration; centripetal force: reference – Chapter 5.1 to 5.3

- Note: The topic referenced in Chapter 5.2 (centripetal acceleration) is key to this unit, but the textbook just briefly skims over the theory that verifies the conclusion (the equation and direction of centripetal acceleration). In the video lesson and notes I go into much more depth than the textbook. The depth is for folks who seeks to understand more fully, rather than just memorize the equation (i.e. please watch the video lesson! Memorizing will get you through the exam, but won't help with future studies when you go into further depth)

34. Circular motion video lesson #1:

<https://www.loom.com/share/75ac717f0751421189e0baa38a1dd0e4>

Horizontal circles: reference – Chapter 5.3 and Uniform Circular Motion worksheet booklet

- Uniform Circular Motion worksheet booklet - Page 1 #1, 2, 3
- Example – driving around a corner

35. Circular motion video lesson #2:

<https://www.loom.com/share/68bfa7fb7a1f40c48383b02d35e53e39>

Horizontal circles - Conical pendulum: reference – Chapter 5.3 and Uniform Circular Motion worksheet booklet

- Uniform Circular Motion worksheet booklet - Page 4 #9 and 10

36. Circular motion video lesson #3:

<https://www.loom.com/share/3974c41b4a2449eeadbeebf97ba528a6>

Vertical circles - Swing by a rope: reference – Chapter 5.7 and Uniform Circular Motion worksheet booklet

- Limits – minimum speed; maximum speed

37. Circular motion video lesson #4:

<https://www.loom.com/share/5963d6ea5bd84d1f902578ce697a39aa>

Vertical circles - Hills/roller coasters: reference – Chapter 5.7 and Uniform Circular Motion worksheet booklet

- Limits – minimum speed; maximum speed

38. *Circular motion video lesson #5:*

<https://www.loom.com/share/93dc01ecf48e4cf8eb8ec343ff045280e>

Satellites and Circular Orbits: reference – Chapter 5.5, 5.6 and Uniform Circular Motion worksheet booklet

- Orbital speed *and* Geosynchronous orbit

39. *Circular motion video lesson #6:*

<https://www.loom.com/share/9acdee2b0c8349d2a3651885d4d145b6>

- Apparent weightlessness and Artificial Gravity

40. *Circular motion video lesson #7:*

<https://www.loom.com/share/4bc2cf2eb81647daada7f24c80bb9723>

DC Circuits

41. DC Circuits online simulation lab:

<https://www.loom.com/share/893995d8eeff4c818b382f3b9600adaf?sid=11f67d5f-29c9-4d09-80f1-f0a27d5c0fbf>