



**STEM Online NZ offers complete resources that cover all the learning required in the following NCEA Achievement Standards...**

## Science

AS90940: Mechanics (Level 1)

AS91171: Mechanics (Level 2)

AS91524: Mechanics (Level 3)

## Mathematics

AS91028: Tables, Equations,  
Graphs (Level 1)

AS91027: Algebra (Level 1)

***[TO REGISTER CLICK HERE](#)***



- The organisation of the resources is similar for each of these standards. To help you navigate the resources we will show how AS90940 Mechanics is set out.



Click on the images below to get started.

If your content doesn't launch immediately, check that your pop-up blocker is disabled for CANVAS.



Welcome to Physics



1. Introduction to Motion



2. Speed



3. Acceleration



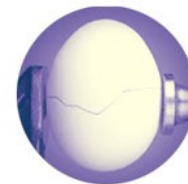
4. Motion Graphs



5. Introduction to Forces



6. Friction



7. Pressure



8. Energy



9. Work and Power



10. Review

- A short video introduces the presenters.



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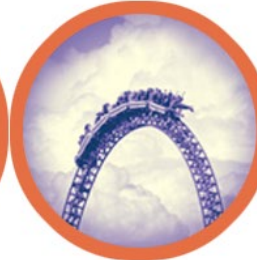
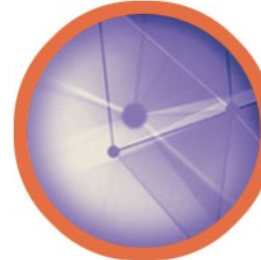
10. Review

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Welcome to Physics



10. Review

- Each achievement standard starts with an overview of the key concepts and content.
- You can study these in any order you like.

- The final 'review' module contains a study guide, study notes for each section, Q & As, exam papers and useful links



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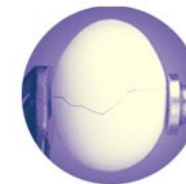
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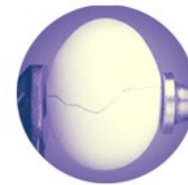
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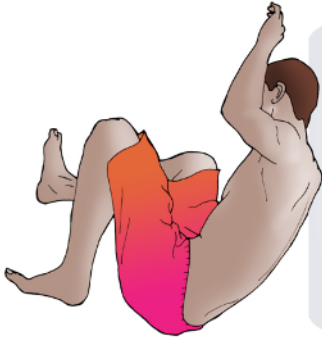
10. Review

- Each concept is organised into a set of resources and activities.
- The screenshots on the following slides show the organisation for **Unit 8: Energy.**

What are we up to in week 8?	Energy	What is Energy?
Types of Energy	Gravitational potential energy	Do it: Swinging ball of death
Kinetic energy	Work it out: Energy	
Energy transformations	Law of conservation of energy	Collaborate: Should we jump?
Work it out: Bodene bomb	Work it out: Howzat?	
Kinetic energy, mass and speed	Quiz	Let's review...

What are we up to in week 8?	Energy	What is Energy?
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### What are we doing in part 8?



#### Learning Goals

By the end of the section, you should be able to:

- Describe energy transformations
- Calculate gravitational potential energy and kinetic energy
- Calculate speed from kinetic energy
- Apply the law of conservation of energy to find unknown speeds
- Discuss the effect of friction and how it relates to conservation of energy

There is a check sheet to help you track your progress.

Click the icon to take a look:

- Each unit starts with an overview of goals and activities.



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ENERGY = 96% **GRAVITATIONAL POTENTIAL ENERGY**  
4% **KINETIC ENERGY**


- This is followed by an introductory video of the big idea and key concepts of the unit.

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[RETURN](#)

## Work it out: Bodene bomb

Let's look again at Bodene's energy as he jumps from the wharf.



What types of energy does Bodene have before he jumps and as he is about to hit the water?

Select your answers from the options below, then click submit.

The energy Bodene has before he jumps is  energy.

Just before he hits the water, this stored energy is transformed into  energy.

[SUBMIT](#)

- There are lots of practice activities that you can do in any order you like. A tick appears in each box as you complete it.

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- Real-world experiments are supported by internet resources that reinforce the concept.



**STEM Online NZ also works with the Ministry of Education to produce learning resources for the following Digital Technologies Achievement Standards...**

## Digital Technologies (Level 1):

AS91886: Human Computer Interaction.  
In English and Te Reo Māori

AS91887: Compression Coding.  
In English and Te Reo Māori

AS91885: Search and Sort Algorithms

AS91880: Media Design

## Digital Technologies (Level 2):

AS91898: Demonstrate understanding  
of a computer science concept

AS91899: Present a summary of  
developing a digital outcome

- *Read more about these at the [TKI website](#).*
- *Register by [clicking here](#).*

