

NZ Transport Agency Rail Safety Resource – Primary – Level 1 to Level 4

ICT Supporting Resources

General Rail Network Hyperlinks

KiwiRail

KiwiRail: <http://www.kiwirail.co.nz/>

KiwiRail: Projects: Major Projects: Auckland Rail Electrification

Auckland Rail Electrification: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification.html>

KiwiRail: Auckland Electrification Safety: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification/auckland-electrification-safety.html>

KiwiRail: Signalling and Traction: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification/signalling-and-traction.html>

KiwiRail: Auckland Electrification Map: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification.html>

KiwiRail: Emergency Rescue Procedures: Electrocution: <http://www.kiwirail.co.nz/infrastructure/infrastructure-and-engineering/accessing-the-corridor/electrical-safety.html>

KiwiRail Image and Film Library

KiwiRail Image and Film Library: <http://www.kiwirail.co.nz/media/image-library>

KiwiRail Freight

KiwiRail Freight TVC 2013 (60sec): <http://www.kiwirail.co.nz/media/image-library>

KiwiRail Scenic Journeys – long distance passenger services

KiwiRail Scenic Journeys: <http://www.kiwirailscenic.co.nz/>

KiwiRail Scenic Journeys: Our Stations: <http://www.kiwirailscenic.co.nz/our-stations/>

KiwiRail Scenic Video Channel: <http://www.youtube.com/user/KiwiRailScenic>

KiwiRail Scenic Journeys | Take a break. Take a train. (Full length): : <http://www.kiwirail.co.nz/media/image-library>

Tranz Metro (Wellington)

Tranz Metro – suburban services – Wellington: <http://www.tranzmetro.co.nz/>

Tranz Metro: <http://www.tranzmetro.co.nz/>

www.education.nzta.govt.nz

Tranz Metro; Service Maps: <http://www.tranzmetro.co.nz/Maps.aspx>

Transdev (Auckland)

Transdev Auckland – suburban services – Auckland: http://en.wikipedia.org/wiki/Transdev_Auckland

Transdev Auckland - suburban services – Auckland: <http://www.transdev.co.nz/>

Transdev Network Map pdf: <http://www.transdev.co.nz/network-map>

Transdev Network Performance: <http://www.transdev.co.nz/index.php?id=562>

Auckland Transport

Auckland Transport: <http://www.aucklandtransport.govt.nz/Pages/default.aspx>

Auckland Transport: Auckland Rail Upgrade: <http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/default.aspx>

Auckland Transport: Britomart Station: <http://www.aucklandtransport.govt.nz/public-transport/britomarttransportcentre/Pages/default.aspx>

Auckland Transport: City Rail Link: <http://www.aucklandtransport.govt.nz/improving-transport/city-rail-link/Pages/default.aspx>

Auckland Transport: Electric Train Design Features:
<http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/electric-train-design-and-features.aspx>

Auckland Transport: Auckland Rail Upgrade: Wiri Depot:
<http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/Wiri-Depot.aspx>

Auckland Transport: Auckland Rail Upgrade: Electric Train Questions:
<http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/Wiri-Depot.aspx>

Auckland Transport: Depot Questions: <http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/depot-questions.aspx>

TrackSAFE NZ

TrackSAFE NZ: Safety Advice: <http://www.tracksafe.co.nz/safetyadvice.html>

Safety Advice: Motorists: <http://www.tracksafe.co.nz/safety-advice/info-for-motorists>

Safety Advice: Pedestrians: <http://www.tracksafe.co.nz/safety-advice/info-for-pedestrians>

Safety Advice: Overhead Wires: <http://www.tracksafe.co.nz/safety-advice/electrification>

Safety Advice: Platforms and stations: <http://www.tracksafe.co.nz/safety-advice/platforms-and-stations>

Safety Advice: Travelling with children: <http://www.tracksafe.co.nz/safety-advice/travelling-with-children>

Safety Advice: Rail safety in schools: <http://www.tracksafe.co.nz/safety-advice/schools-program>

Safety Advice: Electric trains: <http://www.tracksafe.co.nz/safety-advice/electric-trains>

Safety Advice: Heavy vehicles: <http://www.tracksafe.co.nz/safety-advice/heavy-vehicles>

TrackSAFE NZ: Rail Environment: <http://www.tracksafe.co.nz/railinnz.html>

Rail Environment: Facts about trains: <http://www.tracksafe.co.nz/rail-in-nz/facts-about-trains>

Rail Environment: Rail environment: <http://www.tracksafe.co.nz/rail-in-nz/rail-in-nz>

Rail Environment: Level crossings: <http://www.tracksafe.co.nz/rail-in-nz/level-crossings>

Rail Environment: Crossing protection: <http://www.tracksafe.co.nz/rail-in-nz/crossing-protection-upgrades>

www.education.nzta.govt.nz

Rail Environment: Research and projects: <http://www.tracksafe.co.nz/rail-in-nz/research-and-projects>

Rail Environment: Upgrades to crossings: <http://www.tracksafe.co.nz/rail-in-nz/upgrades-to-crossings>

TrackSAFE NZ: Issues: <http://www.tracksafe.co.nz/issues.html>

Issues: Trespassing: <http://www.tracksafe.co.nz/issues/trespassing>

Issues: Level crossing collisions: <http://www.tracksafe.co.nz/issues/level-crossing-collisions>

Issues: Near collisions: <http://www.tracksafe.co.nz/issues/near-collisions>

Issues: Causal factors: <http://www.tracksafe.co.nz/issues/causes>

Issues: The law: <http://www.tracksafe.co.nz/issues/the-law>

TrackSAFE NZ: About: <http://www.tracksafe.co.nz/about.html>

About: TrackSAFE NZ: <http://www.tracksafe.co.nz/about/tracksafe-nz>

About: What we do: <http://www.tracksafe.co.nz/about/what-we-do>

About: Our partners: <http://www.tracksafe.co.nz/about/partner-organisations>

About: TrackSAFE Australia: <http://www.tracksafe.co.nz/about/tracksafe-australia>

TrackSAFE Australia

TrackSAFE: Education: <http://www.tracksafeeducation.com.au/Home.aspx>

TrackSAFE: Be on the Safe Side: Students Site:

<http://www.beonthesafeside.com.au/Primary/Home.aspx>

Hawkins Infrastructure

Hawkins Infrastructure: Auckland Rail Electrification Project:

<http://hawkinsinfrastructure.co.nz/auckland-rail-electrification-project-aep/>

Hawkins Infrastructure: Auckland Rail Electrification:

<http://hawkinsinfrastructure.co.nz/auckland-rail-electrification/>

Hawkins Infrastructure: Papakura Station Redevelopment:

<http://hawkinsinfrastructure.co.nz/papakura-station-redevelopment/>

Hawkins Infrastructure: Mt Albert Rail Station Redevelopment:

<http://hawkinsinfrastructure.co.nz/mt-albert-rail-station-redevelopment-auckland/>

Hawkins Infrastructure: DART 1 Newmarket Rail Station:

<http://hawkinsinfrastructure.co.nz/dart-1-newmarket-rail-station/>

Hawkins Infrastructure: Wellington Rail Station Entry

<http://hawkinsinfrastructure.co.nz/wellington-station-rail-entry/>

Hawkins Infrastructure: Kingsland Train Station Underpass:

<http://hawkinsinfrastructure.co.nz/kingsland-train-station-underpass/>

Hawkins Infrastructure: Dart 26 Platform Extensions:

<http://hawkinsinfrastructure.co.nz/dart-26-platform-extensions/>

Other websites

TVNZ

www.education.nzta.govt.nz

TVOne News Report on Test Run: <http://tvnz.co.nz/national-news/auckland-s-new-trains-tested-using-bags-sand-video-5782096>

Wikipedia:

Auckland Railway Electrifications: http://en.wikipedia.org/wiki/Auckland_railway_electrification

Auckland Transport and Urban design:

Archive for Electric Trains Category: <http://www.aktnz.co.nz/category/electric-trains-2/>

Reflex: Bridge Safety Screens – Auckland Rail Electrification Project:

<http://reflex.co.nz/industrial/architectural/bridge-safety-screens-auckland-rail-electrification-project>

Eye on Auckland: Rail Safety Screens:

<http://eyeonauckland.com/2013/02/rail-safety-screens/>

Pollen: Projects Commercial: Auckland Electrification Project: ARC Modular Safety Screen System

<http://www.pollen.net.nz/category/commercial-projects/>

NZ Transport Agency:

Tracks are for Trains: <http://www.slideshare.net/nztaeducation/tracks-are-for-trains-2014>

Storyboard: <http://www.slideshare.net/nztaeducation/rail-pedestrian-crossing-storyboard>

Heritage Operators

Taieri Gorge Railway (Dunedin)

Taieri Gorge Railway – tourist trains – Dunedin: http://en.wikipedia.org/wiki/Taieri_Gorge_Railway

Taieri Gorge Railway: <http://www.taieri.co.nz/>

Taieri Gorge Railway: Technical Information: http://www.taieri.co.nz/technical_info.htm

NZ Taieri Gorge Railway: Drivers eye view: YouTube Video: <http://youtu.be/V1GEFVPz0qs>

Taieri Gorge Railway - Dunedin: You Tube Video: http://youtu.be/-YKhcMp_UJ0

List of Railway Museums and Heritage Operators:

http://en.wikipedia.org/wiki/List_of_New_Zealand_railway_museums_and_heritage_lines

The Railway Enthusiasts Society: Auckland: <http://www.railfan.org.nz/>

Steam Incorporated: Paekakariki: <http://www.steaminc.org.nz/>

Mainline Steam: <http://www.mainlinesteam.co.nz/>

Bay of Islands Vintage Railway: <http://www.bayofislandsvintagerailway.org.nz/>

Bush Tramway Club: <http://www.bushtramwayclub.com/>

YouTube

NZ Electric Trains

Auckland Transport: Auckland's New Electric Trains: Playlist:

http://www.youtube.com/watch?v=484_FfGGBZg&list=PL442F15A82428642A

Level Crossings

Level Crossing: <http://youtu.be/G7hylkqyp9k>

www.education.nzta.govt.nz

Level Crossing: Train 126 @ Kaukapakapa: <http://youtu.be/sYgQYy301AQ>

Level Crossing: 5 Barrier Arm Level Crossing: <http://youtu.be/cPCo1-qyfVk>

Station

Station: Newmarket Railway Station: <http://youtu.be/gRQ8Lbrha2g>

Station: Helensville Freights: <http://youtu.be/7Eg0q823ITU>

Station: Trains around Auckland: <http://youtu.be/cPCo1-qyfVk>

Masts

Masts: Northern Explorer speeding through Taumarunui – HD: <http://youtu.be/aWclHLtTLFQ>

Social Sciences Hyperlinks

The NZ Rail Network.

KiwiRail Scenic video channel: <http://www.youtube.com/user/KiwiRailScenic>

KiwiRail Freight TVC 2013: <http://www.kiwirail.co.nz/media/image-library>

KiwiRail Scenic Journeys: Take a Break. Take a Train: <http://www.youtube.com/user/KiwiRailScenic>

Auckland Transport: Auckland's New Electric Trains playlist:

http://www.youtube.com/watch?v=484_FfGGBZg&list=PL442F15A82428642A

Network Rail: Introduction to Level Crossings: <http://youtu.be/G7hylkqyp9k>

Train 126 @ Kaukapakapa (level crossing): <http://youtu.be/sYgQYy301AQ>

Trains around Auckland (five-barrier arm level crossing): <http://youtu.be/cPCo1-qyfVk>

Newmarket Railway Station: <http://youtu.be/gRQ8Lbrha2g>

Helensville Freights (station): <http://youtu.be/7Eg0q823ITU>

Station: Trains around Auckland (station): <http://youtu.be/cPCo1-qyfVk>

Northern Explorer Speeding through Taumarunui (masts): <http://youtu.be/aWclHLtTLFQ>

YouTube: Social Networks

CommonCraft Video: Social Networks: http://youtu.be/6a_KF7TYKVc

Railways Exploration

Te Ara: Exploration: Railways: <http://www.teara.govt.nz/en/railways/page-1>

Railways Innovation

Cross country trains ticket reservation: <http://www.crosscountrytrains.co.uk/travel-tools/ten-minute-reservations>

Ouigo launches low cost high speed train service: <http://transitized.com/2013/02/19/ouigo-sncf-launches-more-low-cost-train-service/>

Future of Rail Networks

Wikipedia: 3D Printing: http://en.wikipedia.org/wiki/3D_printing

Prime Air: <http://www.amazon.com/b?node=8037720011>

Amazon drones: http://youtu.be/F9_vxLNooa4

Delivery Drones Already Exist: <http://www.wired.com/business/2014/01/delivery-drones-already-exist/>

The Martin Jetpack: <http://www.martinjetpack.com/>

Wikipedia: Jet Pack: http://en.wikipedia.org/wiki/Jet_pack

No Flight of Fancy the Jet Pack is Coming from New Zealand:

<http://online.wsj.com/news/articles/SB10001424127887323981304579078990245523348>

The future of rail:

<http://online.wsj.com/news/articles/SB10001424052748703834804576301230350030512>

Railway Networks in the Past

Archives NZ: Celebrating 150 years on NZ Railways:

http://www.youtube.com/watch?v=yQv7P4VA4ml&list=PLFjRz3quvmyAS_dlmagdtPXaXg-N9v3DP&feature=share

Use Matapihi www.matapihi.org.nz/ to search for images online. For example, a search for Newmarket Railway Station pulled up images from the 1920s, 1970's and 1990's.

Digital NZ; <http://www.digitalnz.org/>

Local History Online: <http://www.localhistoryonline.org.nz/cgi-bin/PU1>

National Library: Publications (NZ): <http://publicationsnz.natlib.govt.nz/>

Te Ara: <http://www.teara.govt.nz/>

NZ History: <http://www.nzhistory.net.nz/>

NZ Electronic Text Collection: <http://nzetc.victoria.ac.nz/>

The Film Archive: <http://www.filmarchive.org.nz/>

TVNZ On Demand: <http://tvnz.co.nz/video>

National Library of NZ: <http://natlib.govt.nz/>

National Library: Time Frames: <http://timeframes.natlib.govt.nz/>

The NZ Historic Places Trust: <http://www.historic.org.nz/>

NZ By Rail: <http://www.railnewzealand.com/>

Te Ara: Biographers Gallery: <http://www.teara.govt.nz/en/browse/page/biographies>

Te Ara: Railways: <http://www.teara.govt.nz/en/railways>

Te Ara: Bridges and Tunnels: <http://www.teara.govt.nz/en/bridges-and-tunnels>

Rail Transport in New Zealand: http://en.wikipedia.org/wiki/Rail_transport_in_New_Zealand

Wikipedia: North Auckland Line: http://en.wikipedia.org/wiki/North_Auckland_Line

Wikipedia: Stratford Okahukura Line:

http://en.wikipedia.org/wiki/Stratford%E2%80%93Okahukura_Line

Wikipedia: Wairarapa Line: http://en.wikipedia.org/wiki/Wairarapa_Line

Wikipedia: Palmerston North Gisborne Line: http://en.wikipedia.org/wiki/Wairarapa_Line

NZ Herald: KiwiRail on track after a hard year:

http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11117328

New Zealand Rail Networks

Wikipedia: Rail Transport in New Zealand:

http://en.wikipedia.org/wiki/Rail_transport_in_New_Zealand

Wikipedia: Public Transport in Auckland: http://en.wikipedia.org/wiki/Public_transport_in_Auckland

Wikipedia: North Auckland Line: http://en.wikipedia.org/wiki/North_Auckland_Line

Wikipedia: Stratford Okahukura Line:

http://en.wikipedia.org/wiki/Stratford%E2%80%93Okahukura_Line

Wikipedia: Wairarapa Line: http://en.wikipedia.org/wiki/Wairarapa_Line

Wikipedia: Palmerston North Gisborne Line: http://en.wikipedia.org/wiki/Wairarapa_Line

Wikipedia: Auckland Railway Electrification:

http://en.wikipedia.org/wiki/Auckland_railway_electrification

Auckland Transport: Auckland Rail Upgrade: <http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/default.aspx>

Living Heritage: The Johnsonville Railway: Raroa Intermediate:

<http://www.livingheritage.org.nz/schools/intermediate/raroa/johnsonville/index.php>

Auckland Transport: Auckland Rail Upgrade: <http://www.aucklandtransport.govt.nz/improving-transport/auckland-rail-upgrade/electric-trains/Pages/default.aspx>

www.education.nzta.govt.nz

Historical Maps

National Library Cartographic Collection: <http://natlib.govt.nz/collections/a-z/cartographic-collection>

Matapihi: <http://matapihi.org.nz/>

The 1908 City Of Auckland Map Archive:

<http://www.aucklandcity.govt.nz/auckland/Introduction/archives/1908map.asp>,

Te Ara: Early Map of Auckland 1865:

<http://www.teara.govt.nz/EarthSeaAndSky/NaturalHazardsAndDisasters/Volcanoes/3/ENZ-Resources/Standard/5/en> ,

Auckland City Library Maps Online: <http://www.aucklandcity.govt.nz/dbtw-wpd/maps/mapsfr.html>

Te Ara: Early Mapping: <http://www.teara.govt.nz/en/early-mapping>

A Guide to Finding Historical New Zealand Maps:

<http://www.library.auckland.ac.nz/docs/helpsheets/FindingHistoricalMaps.pdf>

Auckland Libraries: Heritage Images: Maps:

<http://www.aucklandcity.govt.nz/dbtw-wpd/heritageimages/advanced.htm>

Auckland Libraries: Auckland Crown Grants:

<http://www.aucklandcitylibraries.com/DigitalLibrary/resourcepages/aucklandcrowngrants.aspx>

Hocken library: University of Otago:

http://www.otago.ac.nz/library/exhibitions/he_tirohanga_ki_muri/images.html#maps

National Library of New Zealand: Collections: <http://natlib.govt.nz/collections>

ANZ Maps: <http://www.anzmaps.org/>

Maths Hyperlinks

Measurement Trains

Network Rail: The New Measurement Train: <http://youtu.be/WhVdTXh5XoA>
Wikipedia: New measurement train: http://en.wikipedia.org/wiki/New_Measurement_Train
The Flying Banana: <http://www.networkrail.co.uk/aspx/10924.aspx>
Dr Yellow: http://en.wikipedia.org/wiki/Doctor_Yellow
Iris 320: http://en.wikipedia.org/wiki/SNCF_TGV_Iris_320

New Zealand Rail Network

KiwiRail: <http://www.kiwirail.co.nz/>
KiwiRail Scenic video channel: <http://www.youtube.com/user/KiwiRailScenic>
KiwiRail Freight TVC 2013: <http://www.kiwirail.co.nz/media/image-library>
KiwiRail Scenic Journeys | Take a break. Take a train: <http://www.kiwirail.co.nz/media/image-library>
Auckland Transport: Auckland's New Electric Trains:
http://www.youtube.com/watch?v=484_FfGGBZg&list=PL442F15A82428642A
Level Crossing: Train 126 @ Kaukapakapa: <http://youtu.be/sYgQYy301AQ>
Level Crossing: Trains around Auckland (5 Barrier Arm Level Crossing): <http://youtu.be/cPCo1-qyfVk>
Station: Newmarket Railway Station: <http://youtu.be/gRQ8Lbrha2g>
Station: Helensville Freights: <http://youtu.be/7Eg0q823ITU>
Station: Trains around Auckland: <http://youtu.be/cPCo1-qyfVk>
Masts: Northern Explorer speeding through Taumarunui: <http://youtu.be/aWclHltTLFQ>

Nodes

Math Insight: An Introduction to Networks: http://mathinsight.org/network_introduction
Passy World of Mathematics: Network Mathematics:
<http://passyworldofmathematics.com/network-mathematics/>
NRICH: Delia's Routes: <http://nrich.maths.org/202>
NRICH: Networks and Nodes: <http://nrich.maths.org/1068>
NRICH: Redblue: <http://nrich.maths.org/761>
NRICH: Bands and Bridges: <http://nrich.maths.org/2569>
Math Insight: Introduction to nodes: http://mathinsight.org/network_introduction
YouTube CommonCraft Video Social Networks: http://youtu.be/6a_KF7TYKVc

Rail Network Diagrams and Maps

New Zealand's National Rail Network:
<http://www.transport.govt.nz/ourwork/rail/newzealandsnationalrailnetwork/>
Auckland City Rail Link Map: <http://transportblog.co.nz/2012/07/04/more-info-on-the-crl-announcement/>
Mappery: Auckland Rail Map: <http://www.mappery.com/Auckland-Rail-Map>
Wikipedia: List of Wellington Railway Stations (Tranz Metro network):
http://en.wikipedia.org/wiki/List_of_Wellington_railway_stations
Mappery: North Island Rail Map: <http://www.mappery.com/North-Island-Rail-Map>
www.education.nzta.govt.nz

Maps of the National Rail Network (UK):

http://www.nationalrail.co.uk/stations_destinations/maps.aspx

India Railway Map: <http://www.mapsofindia.com/maps/india/india-railway-map.htm>

Transport for London: London Overground and National Rail:

<http://www.tfl.gov.uk/gettingaround/9444.aspx>

World Map – Major Rail Network: <http://www.mapsofworld.com/world-maps/major-rail-network-map.html>

Kiwirail

Kiwirail: Live Wires: <http://youtu.be/2TQ6QCs4rqo>

Overhead Wires and Electric Trains

Completed wires out near Swanson: <http://transportblog.co.nz/2013/05/13/electrification-project-running-late/>

Railway Technical: Overhead Line – Catenary: <http://www.railway-technical.com/etracp.shtml#Overhead-Line-Catenary>

Catenary and Pantograph: How Does It Work? <http://youtu.be/kFPJ8eF9M2A>

Sparking Matangi Electric Train at Silverstream, Upper Hutt, New Zealand:

<http://youtu.be/sPxG4W4mDhE>

High Speed Beaujolais and Pantograph Action: <http://youtu.be/A0G14ee3tR8>

YouTube: High Speed Beaujolais and pantograph action. <http://youtu.be/A0G14ee3tR8>

Measuring the height of very tall structures using shadows, sight lines or angles.

How stuff works: <http://science.howstuffworks.com/engineering/structural/question379.htm>

Rail Safety

Safety around overhead wires: <http://www.railsafety.co.nz/keeping-safe/safety-around-overhead-wires>

Safety around platforms and stations: <http://www.railsafety.co.nz/keeping-safe/platforms-and-stations>

Rail Safety: Advice for Pedestrians: <http://www.railsafety.co.nz/keeping-safe/advice-for-pedestrians>

Rail Safety: Double Tracking on the Rail Network: <http://www.railsafety.co.nz/keeping-safe/safety-around-double-tracks>

Yellow Lines

Humans in the design of yellow lines: <http://humansindesign.com/post/23699155244/humans-in-the-design-of-yellow-lines>

MRT Platform Buffer Distance Insufficient: <http://ride.asiaone.com/news/general/story/mrt-platform-buffer-distance-insufficient>

Michael Leunig: Poem: “How to get there”: <http://www.leunig.com.au/index.php/works/poems>

Rail Network Maps

Proposed City Rail Link maps: <http://www.aucklandtransport.govt.nz/improving-transport/city-rail-link/Pages/default.aspx>

Newmarket Train Station 3D Diagram: <http://www.gardyneholt.co.nz/government-council/1384/newmarket-train-station-3d-diagram/>

Schematic Map: <http://www.gardyneholt.co.nz/government-council/1385/schematic-map/>

Grafton Station Map: <http://www.gardyneholt.co.nz/government-council/1383/grafon-station-map/>

Auckland Transport Link - <http://www.gardyneholt.co.nz/government-council/1474/auckland-transport-link/>

Strange Maps: <http://bigthink.com/blogs/strange-maps>

40 Maps that Will Help You Make Sense of the World: <http://twistedifter.com/2013/08/maps-that-will-help-you-make-sense-of-the-world/>

A Collection of Very Strange Maps: <http://io9.com/a-collection-of-very-strange-maps-479288345>

If You Thought Apple's Maps Were Weird, Look at These:

<http://www.theguardian.com/commentisfree/interactive/2012/sep/07/weird-maps-to-rival-apple-in-pictures>

Proposed City Rail Link Maps - <http://www.aucklandtransport.govt.nz/improving-transport/city-rail-link/Pages/default.aspx>

Newmarket Station 3D drawing: <http://www.gardyneholt.co.nz/government-council/1384/newmarket-train-station-3d-diagram/>

Schematic Map: <http://www.gardyneholt.co.nz/government-council/1385/schematic-map/>

Grafton Station Map: <http://www.gardyneholt.co.nz/government-council/1383/grafon-station-map/>

Auckland transport Link - <http://www.gardyneholt.co.nz/government-council/1474/auckland-transport-link/>

Unusual Maps

Strange Maps: <http://bigthink.com/blogs/strange-maps>

40 Maps that Will Help You Make Sense of the World: <http://twistedifter.com/2013/08/maps-that-will-help-you-make-sense-of-the-world/>

A Collection of Very Strange Maps: <http://io9.com/a-collection-of-very-strange-maps-479288345>

If You Thought Apple's Maps Were Weird, Look at These:

<http://www.theguardian.com/commentisfree/interactive/2012/sep/07/weird-maps-to-rival-apple-in-pictures>

Direction of Sound

Track Tests – Wretch 32 and George the Poet: <http://youtu.be/N4ul6lh0XQ8>

Behind the Scenes of Track Tests with Wretch 32 and George the Poet:

<http://youtu.be/3ouSHOZRH6M>

Rail Network Sounds

Sound Jay: <http://www.soundjay.com/train-sound-effect.html>

Freesound: <http://www.freesound.org/search/?q=trains>

SoundDogs: <http://www.sounddogs.com/results.asp?Type=1,&CategoryID=1053&SubcategoryID=37>

www.education.nzta.govt.nz

Shockwave Sound: http://www.shockwave-sound.com/track_search.php?track=trains

SoundBible: <http://soundbible.com/1618-Freight-Train.html>

AudioJungle: <http://audiojungle.net/search?utf8=%E2%9C%93&term=train>

RoyaltyFreeMusic: <http://www.royaltyfreemusic.com/sound-effects.html>

Compass Direction and Bearings

American Hiking Society: Compass Basics: <http://www.americanhiking.org/how-to-use-a-compass/>

HowStuffWorks: Which Is Better for Navigation – compass or GPS?:

<http://adventure.howstuffworks.com/outdoor-activities/hiking/compass-or-gps1.htm>

Compass Dude: <http://www.compassdude.com/>

Science Hyperlinks

Rail Network

Auckland Transport: First test run for Auckland's new train (no music):

<http://youtu.be/wdEAZbGIAFs>

AKT: All About Our New Electric Trains: <http://www.akt.nz.co.nz/2011/10/06/all-about-our-new-electric-trains/>

KiwiRail: Auckland Electrification Safety: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification/auckland-electrification-safety.html>

KiwiRail: Live Wire: <http://youtu.be/2TQ6QCs4rgo>

Auckland Transport: First test run for Auckland's new train (no music):

<http://youtu.be/wdEAZbGIAFs>

Auckland Transport: Auckland's first electric train unveiled: http://youtu.be/mm0CoqkTV_U

Ashley Killip Video: Aucklands NEW Electric Trains from CAF, Spain. Testing + (New Horn):

<http://youtu.be/zozNrWCg-PM>

Ashley Killip Video: New EMU's for Aucklands Transport Future undergo testing:

<http://youtu.be/ed8zrCtCNRo>

AKT: Our new trains – Take a video trip: <http://www.akt.nz.co.nz/2011/10/06/our-new-trains-take-a-trip/>

Tim's Video Channel: Johnsonville Line, Drivers Eye View filmed with a GoPro Hero 2 Camera:

<http://youtu.be/tq5ljQquLo>

KiwiRail Image and Film Library: <http://www.kiwirail.co.nz/media/image-library>

Transport Blog: Completed wires out near Swanson:

<http://transportblog.co.nz/2013/05/13/electrification-project-running-late/>

Railway Technical: Overhead line – Catenary: [http://www.railway-](http://www.railway-technical.com/etracp.shtml#Overhead-Line-Catenary)

[technical.com/etracp.shtml#Overhead-Line-Catenary](http://www.railway-technical.com/etracp.shtml#Overhead-Line-Catenary)

Pantograph and Overhead Wires

Pantograph and Overhead Wire: <http://youtu.be/gE-HCldxWuc>

Pantograph Arcing at 27,000V: <http://youtu.be/tYjIRgMHwpl>

Catenary and Pantograph: How Does It Work? <http://youtu.be/kFPJ8eF9M2A>

Sparking Matangi Electric Train at Silverstream, Upper Hutt, New Zealand:

<http://youtu.be/sPxG4W4mDhE>

High Speed Beaujolais and Pantograph Action: <http://youtu.be/A0G14ee3tR8>

Level Crossings

KiwiRail: Train drivers use their horns when approaching a level crossing.

KiwiRail: Glen Eden Level Crossing Photograph: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification.html>

Wire Loop Game Circuits

Central Networks: Making a Buzzing Circuit Game: [http://www.eon-](http://www.eon-uk.com/downloads/worksheet12.pdf)

[uk.com/downloads/worksheet12.pdf](http://www.eon-uk.com/downloads/worksheet12.pdf)
www.education.nzta.govt.nz

Buzz Wire: <http://youtu.be/4g7TBXnLucA>
Wire Loop Game: <http://youtu.be/mz7IzikzIOs>
Constructing the Steady Hand Buzzer Game: <http://youtu.be/0a2gX7VMIT4>

Graphics programmes:

Google SketchUp: <http://www.sketchup.com/>
Kid Pix Deluxe 4 for Schools: <http://softwareforlearning.tki.org.nz/Products/Kid-Pix>
HyperStudio 5: <http://www.mackiev.com/hyperstudio/index.html>
Tux Paint: <http://www.tuxpaint.org/>
Draw.To: <http://draw.to/new>
ABCya Paint: http://www.abcya.com/abcya_paint.htm
timtim: <http://www.timtim.com/coloring/drawing/>
Crayola Digi Colour: http://www2.crayola.com/coloring_application/index.cfm
Kerpoof: <http://www.kerpoof.com/#/activity/draw>

Energy

BBC BiteSize Revision: KS3 Science Energy:
http://www.bbc.co.uk/bitesize/ks3/science/energy_electricity_forces/energy_transfer_storage/revision/1/
BBC Bitesize Revision: Energy Transfer and Storage:
http://www.bbc.co.uk/bitesize/ks3/science/energy_electricity_forces/energy_transfer_storage/revision/2/
Eon Energy Educational Resources:
Energy Home: 5 to 7 year olds <http://www.eon-uk.com/EnergyExperience/85.htm>
Energy Town: 7 to 11 year olds: <http://www.eon-uk.com/EnergyExperience/93.htm>
Energy Nation: 11 to 14 year olds: <http://www.eon-uk.com/EnergyExperience/479.htm>

Images - copyright friendly images

Search Creative Commons: <http://search.creativecommons.org>
Shahi Visual Dictionary: <http://blachan.com/shahi/>
Pics4Learning: <http://www.pics4learning.com/index.php>

Energy Transfer Machines

Joseph Herscher (NZ artist based in New York): <http://www.josephherschher.com/>
Joseph Herscher – The Page Turner: <http://youtu.be/GOMIBdM6N7Q>
Rube Goldberg machines: <http://www.rubegoldberg.com/>
W Heath Robinson: http://en.wikipedia.org/wiki/W._Heath_Robinson
Mouse Trap game: http://en.wikipedia.org/wiki/Mouse_Trap_%28game%29
The Incredible Machine: http://en.wikipedia.org/wiki/The_Incredible_Machine_%28game%29

Charge Generators

Should a Person Touch 200,000 Volts? A Van de Graaff Generator Experiment:

<http://www.youtube.com/watch?v=ubZuSZYVBng&list=PL41778092B7768366>

Static Electricity: Van de Graaff Generator <http://youtu.be/rNEY3Yv9kC8>

Steve Spangler Science: <http://www.stevespanglerscience.com/lab/experiments/floating-static-bands>

Electroscope

YouTube: How to Make Your Own Electroscope!

<http://www.youtube.com/watch?v=Zo6l6rvtu2g&list=PL41778092B7768366&index=10>

Charge in everyday life

Hindenburg Explosion "Caused by Static Electricity":

<http://www.telegraph.co.uk/news/worldnews/northamerica/usa/9908985/Hindenburg-explosion-caused-by-static-electricity.html>

Stop Static (campaign to prevent refuelling fires at gas pumps):

<http://www.pei.org/PublicationsResources/SafetyResources/StopStaticCampaign/tabid/121/Default.aspx>

Dust Explosion: <http://science.howstuffworks.com/dust-explosion-info.htm>

Lightning

Steve Spangler: The Science of Lightning:

<http://www.stevespanglerscience.com/lab/experiments/lightning-science>

The Birth of a Lightning Bolt (slow motion lightning strike): <http://youtu.be/6MUysljTKvk>

The Science of Making Lightning: <http://youtu.be/WyygaemPt9s>

National Geographic: Lightning Strikes: http://youtu.be/H_MG_53wsM

Seeing Electricity: <http://www.sciencelearn.org.nz/Contexts/Super-Sense/Sci-Media/Images/Seeing-electricity>

Emergency Rescue Procedures

KiwiRail: Electrical Safety (emergency rescue procedures):

<http://www.kiwirail.co.nz/infrastructure/infrastructure-and-engineering/accessing-the-corridor/electrical-safety.html>

Wikipedia: First Aid/Electrocution: http://en.wikibooks.org/wiki/First_Aid/Electrocution

Electrical Energy

Engineering Interact: Electricity in Our Lives:

<http://www.engineeringinteract.org/resources/siliconspies/flash/concepts/electricity.htm>

Electric Eel:

www.education.nzta.govt.nz

Electric Eel : Moody Institute of Science. (1954 Educational Film) Part 1 of 2:

<http://youtu.be/NNZmlcBpRLw>

Electric Eel : Moody Institute of Science. (1954 Educational Film) Part 2 of 2:

<http://youtu.be/HdMp7qyyhB8>

Electric eel Christmas Tree: <http://youtu.be/8oS9YuGIWMU>

Energy Transfer: Models and Role Play.

TES Connect: Teachers' TV: Primary Science – Electricity (role play modelling energy flow in simple circuits): <http://www.tes.co.uk/teaching-resource/Teachers-TV-Primary-Science-Electricity-6044058/>

Furry Elephant: Electric Circuit Analogies:

<http://www.furryelephant.com/content/electricity/teaching-learning/electric-circuit-analogies/>

Glossaries: Electrical Energy

Science Learning: <http://www.sciencelearn.org.nz/Contexts/Super-Sense/Key-Terms#term7023>

Plush Science Toys

Particle Zoo: <http://www.particlezoo.net/index.html>

Giant Microbes: <http://www.giantmicrobes.com/>

Canned Dragon Meat: <http://www.thinkgeek.com/product/1144/>

Canned Unicorn Meat: <http://www.thinkgeek.com/product/e5a7/>

Paper Circuits: <http://youtu.be/BwKQ9Idq9FM>

Make your own electrical energy games

TES Connect: Teachers' TV: Primary Science – Electricity (use Floating questions game with components in electrical circuits): <http://www.tes.co.uk/teaching-resource/Teachers-TV-Primary-Science-Electricity-6044058/>

Lesson plan for designing your own circuit game in TES Connect Teachers TV: Primary Science – Electricity: <http://www.tes.co.uk/teaching-resource/Teachers-TV-Primary-Science-Electricity-6044058/>

Claire's Electric Quiz Board: <http://youtu.be/EdMnObe6D4M>

Electric Exam: A Home-made Electrical Quiz Board:

<http://www.darkstar.cc/discovery/electricexam.htm>

How to Make an Electronic Matching Game: <http://www.youtube.com/watch?v=z8wadyalsy0>

Instructables: A Simple Circuit Game: <http://www.instructables.com/id/A-Simple-Circuit--Game/>

Instructables: Build a Simple Circuit from a Pizza Box: <http://www.instructables.com/id/Build-a-Simple-Circuit-from-a-Pizza-Box-No-Solder/>

Instructables: How to Make a Custom Operation Game: <http://www.instructables.com/id/How-to-Make-a-Custom-Operation-Game/>

Instructables: Robot Surgery Game: <http://www.instructables.com/id/Robot-Surgery-Game/>

Instructables: Wire Loop Game: <http://www.instructables.com/id/Wire-Loop-Game/>

Instructables: Operation? No O-Paul-Ration: <http://www.instructables.com/id/Operation-No-O-Paul-Ration/>

Giant Buzz Wire Game: http://youtu.be/_gfSxVIXH2M

Common misconceptions - electric currents

Common Misconceptions regarding Electric Currents:

<http://www.physicsclassroom.com/class/circuits/u9l2e.cfm>

Furry Elephant: Common Misconceptions about Electricity:

<http://www.furryelephant.com/content/electricity/teaching-learning/misconceptions/>

Electricity – Diagnostic Assessment:

http://www1.curriculum.edu.au/sciencepd/teacher/assessment/resr_electricity.htm

Wainwright, C. "Towards Learning and Understanding Electricity: Challenging Persistent

Misconceptions" (PowerPoint): <http://fg.ed.pacificu.edu/wainwright/presentations.html>

Wainwright, C. "Toward Learning and Understanding Electricity: Challenging Persistent

Misconceptions" (article pdf) <http://fg.ed.pacificu.edu/wainwright/publications.html>

Exploring simple circuits.

University of Colorado: Circuit Construction Kit: <http://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>

Squishy Circuits (create circuits and explore electronics using play dough):

<http://courseweb.stthomas.edu/apthomas/SquishyCircuits/index.htm>

TED Talks: Hands on Science with Squishy Circuits:

http://www.ted.com/talks/lang/en/annmarie_thomas_squishy_circuits.html

Engineering Interact: The Real Deal – Electricity:

<http://www.engineeringinteract.org/resources/discovermore/electricity.htm>

Engineering Interact: Silicon Spies (electricity game):

<http://www.engineeringinteract.org/interact.htm>

Engineering Interact: Simple Circuits:

<http://www.engineeringinteract.org/resources/siliconspies/flash/concepts/simplecircuits.htm>

Engineering Interact: Building Circuits:

<http://www.engineeringinteract.org/resources/siliconspies/flash/concepts/buildingcircuits.htm>

Engineering Interact: Circuit Experiments

<http://www.engineeringinteract.org/resources/siliconspies/flash/concepts/experimenting.htm>

The Blobz Guide to Electric Circuits (interactive animations):

<http://www.andythelwell.com/blobz/guide.html>

BBC Schools Science Clips: Simple Circuits – ages 6 to 7:

Worksheet:

http://www.bbc.co.uk/schools/scienceclips/teachersresources/ages6_7/tr_ages6_7.shtml#

BBC Schools Science Clips: Circuits and Conductors – ages 8 to 9:

Worksheet:

http://www.bbc.co.uk/schools/scienceclips/teachersresources/ages8_9/tr_ages8_9.shtml#

BBC Schools Science Clips: Changing Circuits – ages 10 to 11:

Worksheet:

http://www.bbc.co.uk/schools/scienceclips/teachersresources/ages10_11/tr_changing_circuits_wk.shtml

BBC Schools: Static – Static Electricity:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/static_elec/staticrev1.shtml

BBC Schools: Static – Electric Shocks:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/static_elec/staticrev2.shtml

BBC Schools: Static – Safety Measures:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/static_elec/staticrev3.shtml

BBC Schools: Static – Uses of Electrostatics:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/static_elec/staticrev4.shtml

BBC Schools: Electric Current – Electric Circuits:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/static_elec/electriccurrentrev1.shtml

BBC Schools: Circuits – Series and Parallel Circuits:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/controlling_current/circuitsrev1.shtml

BBC Schools: Circuits – Current and Voltage:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/controlling_current/circuitsrev2.shtml

BBC Schools: Circuits – Cells and Circuits:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/controlling_current/circuitsrev3.shtml

BBC Schools: Circuits – Potential Difference and Charge:

http://www.bbc.co.uk/schools/gcsebitesize/science/add_edexcel/controlling_current/circuitsrev4.shtml

BBC Schools: Annie's Circuit Builder:

<http://www.bbc.co.uk/schools/podsmision/electricity/annie03.shtml>

BBC Schools: Pod's Lemon Battery:

<http://www.bbc.co.uk/schools/podsmision/electricity/pod.shtml>

BBC Schools: Ollo's Electricity – Top Facts:

<http://www.bbc.co.uk/schools/podsmision/electricity/ollo.shtml>

TKI: Science Online: Nature of Science: Which of these Materials Make the Lights Go on:

<http://scienceonline.tki.org.nz/Nature-of-science/Nature-of-Science-Teaching-Activities/Which-of-these-materials-make-the-light-go-on>

The FuseBox: Circuit Builder: <http://thefusebox.northernpowergrid.com/page/circuitbuilder.cfm>

English Hyperlinks

Rail Network

All About Our New Electric Trains: <http://www.aktanz.co.nz/2011/10/06/all-about-our-new-electric-trains/>

Auckland Electrification Safety: <http://www.kiwirail.co.nz/projects/major-projects/auckland-rail-electrification/auckland-electrification-safety.html>

Live Wire: <http://youtu.be/2TQ6QCs4rqo>

Auckland Transport: First test run for Auckland's new train (no music): <http://youtu.be/wdEAbGIAFs>

Auckland Transport: Auckland's first electric train unveiled: http://youtu.be/mm0CoqkTV_U

Aucklands NEW Electric Trains from CAF, Spain. Testing + (New Horn): <http://youtu.be/zozNrWCq-PM>

New EMU's for Aucklands Transport Future undergo testing: <http://youtu.be/ed8zrCtCNRo>

Our new trains – Take a video trip: <http://www.aktanz.co.nz/2011/10/06/our-new-trains-take-a-trip/>

Johnsonville Line, Drivers Eye View filmed with a GoPro Hero 2 Camera: <http://youtu.be/tq5ljQquLo>

KiwiRail Image and Film Library: <http://www.kiwirail.co.nz/media/image-library>

Facts and opinions

PBS Kids <http://pbskids.org/arthur/games/factsopinions/factsopinions.html>

Argument

YouTube Monty Python The Argument Clinic: <http://youtu.be/kQFKtl6gn9Y>

TKI: Written Language: Argument: Exemplars:

http://www.tki.org.nz/r/assessment/exemplars/eng/trans/index_e.html

English Online; Arguing a Point: <http://english.unitecology.ac.nz/enhancingtheenglishcurriculum/>

HOT SOLO Analyse Map and self-assessment rubric:

<http://pamhook.com/tools/SelfAssessment.html#slide3,Analyse>

Writing Frames – Argument and Opinion

Oreo (opinion, reason, explanation, opinion restated) Frame:

<http://www.australiancurriculumlessons.com.au/2012/11/09/persuasive-writing-lesson-oreo-opinion-reason-explanation-opinion/>

HOT SOLO Generalise/In my opinion frame and self-assessment rubric.

<http://pamhook.com/tools/SelfAssessment.html#slide3,Generalise>

HOT SOLO Evaluate/Argument Frame and self-assessment rubric.

<http://pamhook.com/tools/SelfAssessment.html#slide3,Evaluate>

Read Write Think Persuasive Writing Frame: Can you convince me?

http://www.readwritethink.org/lessons/lesson_view.asp?id=56

WebEnglishTeacher : Argument Writing Resources.

<http://www.webenglishteacher.com/argument.html>

Online Argument Mapping Frameworks.

Argunet: <http://www.argunet.org/>

Debate Graph: <http://debategraph.org>

bCisive Online: <https://www.bcisiveonline.com/>

Rationale: <http://rationale.austhink.com/>

Compendium: <http://compendium.open.ac.uk/>

Argumentative: <http://sourceforge.net/projects/argumentative/>