Science Learning Area

Year 11 Science in Practice Program – Wheels in Motion  
Teaching Programme 2024

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Week & lesson** | **Content** | **Activities** | | | | |
| **PPT** | **Worksheet** | **Clip** | **Lab** | **C**lick**V**iew **P**laylist: |
| **1.1** | **Nervous System** | **Class documentation and introduction**  **Worksheet: Scientific Method**  **Lab: Multitasking and attention span**  **Worksheet: Pokemon wordsearch**  **Worksheet: Maths problems** | | | | |
| **1.2** | **PPT: Nervous system**  **Worksheet: Nervous System**  **Clip: Neurotransmitter Synapse 3D Animation** | | | | |
| **1.3** | **Worksheet: Pearson 7.2 Nervous Control Worksheet: Pearson page 282-283**  **PPT: Brain** | | | | |
| **1.4** | **Lab: Brain Dissection Worksheet: Brain Dissection** | | | | |
| **1.5** | **Computers**  A3 Mindmap summary  [Nervous System | BioNinja](https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/65-neurons-and-synapses/nervous-system.html) | | | | |
| **2.1** | **Voluntary and Involuntary Responses** | **Clip: TED brain control** [How to control someone else's arm with your brain | Greg Gage - YouTube](https://www.youtube.com/watch?v=rSQNi5sAwuc)  **PPT: Reflexes**  **Clip: What is a reflex Arc**  **Worksheet: The pupil reflex** | | | | |
| **2.2** | **PPT: Homeostasis**  **Clip: Amoeba Sisters - Homeostasis**  **Worksheet: Homeostasis worksheet** | | | | |
| **2.3** | **Computers**  [Reflex arc - Coordination and control - The nervous system - AQA - GCSE Biology (Single Science) Revision - AQA - BBC Bitesize](https://www.bbc.co.uk/bitesize/guides/zprxy4j/revision/3)  Students use website to make an A3 mindmap of Reflex Arcs.  Students to include neural pathways for driving related stimuli   * Someone stepping into the road without looking * A car in front stopping suddenly * Someone changing lanes without looking * A pothole in the road * Kangaroo jumping onto the road. | | | | |
| **2.4** | **Clip: Human reflexes** [Human reflexes - YouTube](https://www.youtube.com/watch?v=75UrNB38yEU)  **Lab: Reflex Experiment** | | | | |
| **2.5** | **Lab: ReflexesLab**  **Computers**  A3 Mindmap summary [Stimulus-Response | BioNinja](https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/65-neurons-and-synapses/stimulus-response.html) | | | | |
| **3.1** | **Reaction Time** | **Computers Worksheet:** Reaction tests [The Reaction Time Test | JustPark](https://www.justpark.com/creative/reaction-time-test/)  [Reaction Time Test (mathsisfun.com)](https://www.mathsisfun.com/games/reaction-time.html)  [Reaction time test | Reaction speed | CPS Check (cps-check.com)](https://cps-check.com/reaction-test)  **Lab: Reaction time – Dominant Hand**  **Worksheet: Reaction time – Dominant Hand** | | | | |
| **3.2** | Continue from previous day.  Students change the independent factor (e.g be distracted)  **Worksheet: Reaction Time – Catch a Ruler**  **Worksheet: Blank Lab Report**  **Worksheet: Reaction Time Practical example** | | | | |
| **3.3** | **Computers**  **Worksheet: Investigating reaction times** | | | | |
| **3.4** | **Computers**  **Worksheet: Road safety statistics**  **Worksheet: Road safety statistics links** | | | | |
| **3.5** | Continue from previous day | | | | |
| **4.1** | **Assessment 1 – Reaction Time**  Students work individually or in groups to plan and conduct the investigation and summarise their findings in a live or virtual poster presentation. Each student will prepare a written report to communicate their findings.  Planning, working safely and group contributions will be monitored via student logbook, responses to reflection question, peer and self-assessment and teacher observations.  **Time in Class: 13 hours.** | **Assessment 1 – Reaction Time**  **Computers** Introduce Assessment 1. - Provide task sheets, marking keys and logbooks.  Research topic and construct question for investigation. | | | | |
| **4.2** | Select practical activities and identify proposed modifications Submit draft method (Group) | | | | |
| **4.3** |  | | | | |
| **4.4** |  | | | | |
| **4.5** |  | | | | |
| **5.1** | **Stopping Distance** | **Labour Day (WEEK 6)** | | | | |
| **5.2** | **Assessment 1 – Reaction Time**  Conduct Investigation  **Lab: Method Writing Prac** | | | | |
| **5.3** | **PPT: Stopping distances**  **Worksheet: stopping-distance** | | | | |
| **5.4** | **Computers Excel: Stopping\_distance**  **Worksheet: Stopping-distance-and-speed**  **Lab: Stopping Distance Texture lab (planning)**  **Worksheet: Blank Lab report** | | | | |
| **5.5** | Continue experiment from previous lesson | | | | |
| **6.1** | **Stopping Distance**  **Assessment 2 – Reaction Time and driving Supervised written assessment - Test** | **Assessment 1 – Reaction Time**  Conduct Investigation | | | | |
| **6.2** | **Worksheet: Stopping-stances-worksheet** | | | | |
| **6.3** |  | | | | |
| **6.4** |  | | | | |
| **6.5** | **Assessment 2 – Reaction Time and driving Supervised written assessment - Test** | | | | |
| **7.1** | **Motion** | **Assessment 1 – Reaction Time**  Conduct Investigation | | | | |
| **7.2** | **PPT: Scalar and Vector**  **Worksheet: Scalar and Vector**  **Worksheet: Scalar and Vector Cut and Stick** | | | | |
| **7.3** | **PPT: Distance and Displacement**  **Worksheet: Distance vs displacement grid**  **Worksheet: Distance Displacement Velocity Practice Problems** | | | | |
| **7.4** | **PPT: Speed and Velocity**  **Worksheet: Speed Calculations simple**  **Worksheet: Speed and Velocity Worksheet** | | | | |
| **7.5** | **Worksheet: Motion Mind Map** | | | | |
| **8.1** | **Motion** | **Assessment 1 – Reaction Time**  Conduct Investigation | | | | |
| **8.2** | **PPT: Calculating Acceleration**  **Worksheet: Acceleration calculations** | | | | |
| **8.3** | **Worksheet: Acceleration calculations**  **Lab: Hot Wheels Speed and Acceleration Lab** | | | | |
| **8.4** | Carry out investigation from previous lesson. | | | | |
| **8.5** | Catch up on unfinished work. | | | | |
| **9.1** | **Assessment 1 – Reaction Time** | **Assessment 1 – Reaction Time**  Conduct Investigation | | | | |
| **9.2** | **Assessment 1 – Reaction Time**  Analyse data, draw conclusions and evaluate evidence | | | | |
| **9.3** | **Assessment 1 – Reaction Time**  Submit draft written report | | | | |
| **9.4** |  | | | | |
| **9.5** |  | | | | |
| **10.1** | **Assessment 1 – Reaction Time**  **Final Week** | **Assessment 1 – Reaction Time**  Poster presentation | | | | |
| **10.2** |  | | | | |
| **10.3** | **Assessment 1 – Reaction Time**  Submit final written report and logbook | | | | |
| **10.4** |  | | | | |
| **10.5** |  | | | | |
|  | | | | | | |
| **11.1** | **Motion graphs**  **Assessment 3 – Car races**  **Practical assessment** | **PPT: Distance Time Graphs**  **Worksheet: DistTime graph**  **Clickview: Graphing Distance and Time: A Runner’s Story**  [Graphing Distance and Time: A Runner's Story... - ClickView](https://online.clickview.com.au/libraries/videos/3716195/graphing-distance-and-time-a-runner-s-story) | | | | |
| **11.2** | **PPT: Distance displacement graphing**  **Worksheet: Displacement vs Time Worksheet 1**  **Worksheet: DispTime graph**  **Clip: Distance Time Graphs Geometry Maths FuseSchool** | | | | |
| **11.3** | **PPT: Speed Time Graphs**  **Clip: Matrix chase**  **Worksheet: Analyse car chase**  **Worksheet: Speed vs time graph practise**  **Worksheet: Speed-time worksheets (find distance)**  **Clip: Speed, Velocity and Acceleration Clip: Velocity - Time Graphs FuseSchool** | | | | |
| **11.4** | **Worksheet: Graphing Motion**  **Worksheet: Motion graphs booklet** | | | | |
| **11.5** | **Assessment 3 – Car races**  **Practical assessment** | | | | |
| **12.1** | **Forces** | **PPT: Contact & Non-contact forces PPT: Measuring forces**  **Lab: Measuring Forces (Pearson 7 pg 289)** | | | | |
| **12.2** | **Lab: Looking at forces (add a label for contact/non) Clip: Balanced & Unbalanced forces Worksheet: Balanced-and-Unbalanced-Forces-Worksheet PPT: Balanced and Unbalanced**  **Worksheet: Measuring forces worksheet** | | | | |
| **12.3** | **Worksheet: Contact and non-contact worksheet**  **Worksheet: Contact and non- contact forces**  **PPT: Free Body Diagrams**  **Worksheet: Free body diagrams**  **Worksheet: Labelling forces Worksheet: Resultant forces** | | | | |
| **12.4** | **Computers**  **Worksheet: Forces Review questions** | | | | |
| **12.5** |  | | | | |
| **13.1** | **Newton’s Laws of Motion** | **Clip: Illustrating History – Isaac Newton**  <https://www.youtube.com/watch?v=psMy-F8Llpg>  **PPT: Newton’s 1st Law**  **Worksheet: Newton’s Law booklet (students to complete first 4 pages)** | | | | |
| **13.2** | **PPT: Newton’s 2nd Law**  **Worksheet: F-MxA-questions**  **Worksheet: Newton’s Law booklet (page 5 & 6)** | | | | |
| **13.3** | **PPT: Newton’s 3rd Law Worksheet: Newton’s 3rd law worksheet**  **Worksheet: Newton’s Law booklet (page 7 & 8)**  **Worksheet: Newton’s Law review** | | | | |
| **13.4** | **Worksheet: Newton’s Laws Worksheet**  **Worksheet: Before the program**  **Clip: Clickview “Newton’s Laws of Motion”**  [Newton's Laws of Motion - This program shows... - ClickView](https://online.clickview.com.au/libraries/videos/3715909/newton-s-laws-of-motion)  **Worksheet: During the Program** | | | | |
| **13.5** | **Worksheet: Newton’s Laws Revision**  **Worksheet: Newton’s Laws Matching Activity** | | | | |
| **14.1** |  | Wks: Newtons-Laws-Matching-Activity  Mousetrap car | | | | |
| **14.2** | Build | | | | |
| **14.3** | Build | | | | |
| **14.4** | Race Write-up | | | | |
| **14.5** | Write-up | | | | |
| **15.1** | **Interstellar**  Movie analysis |  | | | | |
| **15.2** |  | | | | |
| **15.3** |  | | | | |
| **15.4** |  | | | | |
| **15.5** |  | | | | |
| **16.1** | **Assessment 4 – Movie stunts**  **Project**  Students will work individually to analyse and synthesis information from at least two different sources to illustrate a claim by explaining the relevant scientific concepts and describing the impact and/or influence on the society.  Students will use their research to produce either an infographic or science magazine article.  **Time: 8 hours** | **Assessment 4 – Movie stunts**  Start research and select a movie or scene to analyse | | | | |
| **16.2** | **Assessment 4 – Movie stunts**  Conduct research and find at least two sources to support your claims | | | | |
| **16.3** | **Assessment 4 – Movie stunts**  Conduct research and find at least two sources to support your claims | | | | |
| **16.4** | **Assessment 4 – Movie stunts**  Conduct research and find at least two sources to support your claims | | | | |
| **16.5** |  | | | | |
| **17.1** | **Assessment 4 – Movie stunts**  **Project Due week** | **Assessment 4 – Movie stunts**  Conduct research and find at least two sources to support your claims | | | | |
| **17.2** | **Assessment 4 – Movie stunts**  Conduct research and find at least two sources to support your claims | | | | |
| **17.3** | **Assessment 4 – Movie stunts**  Submit draft infographic or science magazine article | | | | |
| **17.4** | **Assessment 4 – Movie stunts**  Submit final infographic or science magazine article. | | | | |
| **17.5** |  | | | | |
| **18.1** | Rockets? |  | | | | |
| **18.2** |  | | | | |
| **18.3** |  | | | | |
| **18.4** |  | | | | |
| **18.5** |  | | | | |
| **19.1** |  |  | | | | |
| **19.2** |  | | | | |
| **19.3** |  | | | | |
| **19.4** |  | | | | |
| **19.5** |  | | | | |
| **20.1** |  |  | | | | |
| **20.2** |
| **20.3** |
| **20.4** |
| **20.5** |
|  | | | | | | |
| **21.1** |  |  | | | | |
| **21.2** |  | | | | |
| **21.3** |  | | | | |
| **21.4** |  | | | | |
| **21.5** |  | | | | |
| **22.1** |  |  | | | | |
| **22.2** |  | | | | |
| **22.3** |  | | | | |
| **22.4** |  | | | | |
| **22.5** |  | | | | |
| **23.1** |  |  | | | | |
| **23.2** |  | | | | |
| **23.3** |  | | | | |
| **23.4** |  | | | | |
| **23.5** |  | | | | |
| **24.1** |  | | | | |
| **24.2** |  | | | | |
| **24.3** |  | | | | |
| **24.4** |  | | | | |
| **24.5** |  | | | | |
| **25.1** |  |  | | | | |
| **25.2** |  | | | | |
| **25.3** |  | | | | |
| **25.4** |  | | | | |
| **25.5** |  | | | | |
| **26.1** |  | | | | |
| **26.2** |  | | | | |
| **26.3** |  | | | | |
| **26.4** |  | | | | |
| **26.5** |  | | | | |
| **27.1** |  |  | | | | |
| **27.2** |  | | | | |
| **27.3** |  | | | | |
| **27.4** |  | | | | |
| **27.5** |  | | | | |
| **28.1** |  | | | | |
| **28.2** |  | | | | |
| **28.3** |  | | | | |
| **28.4** |  | | | | |
| **28.5** |  | | | | |
| **29.1** |  |  | | | | |
| **29.2** |  | | | | |
| **29.3** |  | | | | |
| **29.4** |  | | | | |
| **29.5** |  | | | | |
| **30.1** |  | | | | |
| **30.2** |  | | | | |
| **30.3** |  | | | | |
| **30.4** |  | | | | |
| **30.5** |  | | | | |
|  | | | | | | |
| **31.1** |  |  | | | | |
| **31.2** |  | | | | |
| **31.3** |  |  | | | | |
| **31.4** |  | | | | |
| **31.5** |  | | | | |
| **32.1** |  |  | | | | |
| **32.2** |  | | | | |
| **32.3** |  | | | | |
| **32.4** |  | | | | |
| **32.5** |  | | | | |
| **33.1** |  |  | | | | |
| **33.2** |  | | | | |
| **33.3** |  | | | | |
| **33.4** |  | | | | |
| **33.5** |  | | | | |
| **34.1** |  |  | | | | |
| **34.2** |
| **34.3** |
| **34.4** |
| **34.5** |
| **35.1** |  |  | | | | |
| **35.2** |
| **35.3** |
| **35.4** |
| **35.5** |
| **36.1** |  |  | | | | |
| **36.2** |
| **36.3** |
| **36.4** |
| **36.5** |