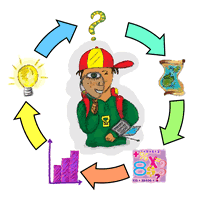
De La Salle College

The Statistical Enquiry Cycle



Unit Plan for Years 7 – 10

Table of Contents

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [Unit Plan](#unitplan)

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [Teaching Unit Plan and Resources for Years 7 - 10](#teachingresources)

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [NZ Curriculum Levels 1 - 6 for Statistical Investigations and Statistical Literacy](#curriculumlevels)

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** Y7 PPDAC Overview

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** Y8 PPDAC Overview

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** Y9 PPDAC Overview

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [Y10 PPDAC Overview](#y10ppdac)

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [PPDAC Poster](#ppdacposter)

**https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [PPDAC Poster (Maori Version)](#ppdacpostermaori)

# **Key to resources in this document:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **http://i-cdn.phonearena.com/images/article/49766-image/Small-YouTube-for-Android-update-improves-apps-search-feature.jpg Youtube clip** | **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSxOlpiA9lC3O62yR4Z4SYCZ_1K02VNvRRuheWqXpgVZxEW6-Ha Video File** | **http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg PDF Document** | **https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png Web Link** | **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t Link in this Document** | Learning objects **Digital Learning Object** |
| **http://www.designdownloader.com/item/pngs/folder_1/folder_1-20110810112846-00003.png Folder in share drive** | **http://www.trainuk.co.uk/sites/default/files/styles/thumbnail/public/excel-2010-icon_5.png Excel File** | **http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png Word Document** | http://kr.rutka.net/slike/ikone/galerijaLogo.png **Image File** | **http://www.rebiun.org/PublishingImages/iconos/icono_powerpoint.png Power-Point Document** |  |

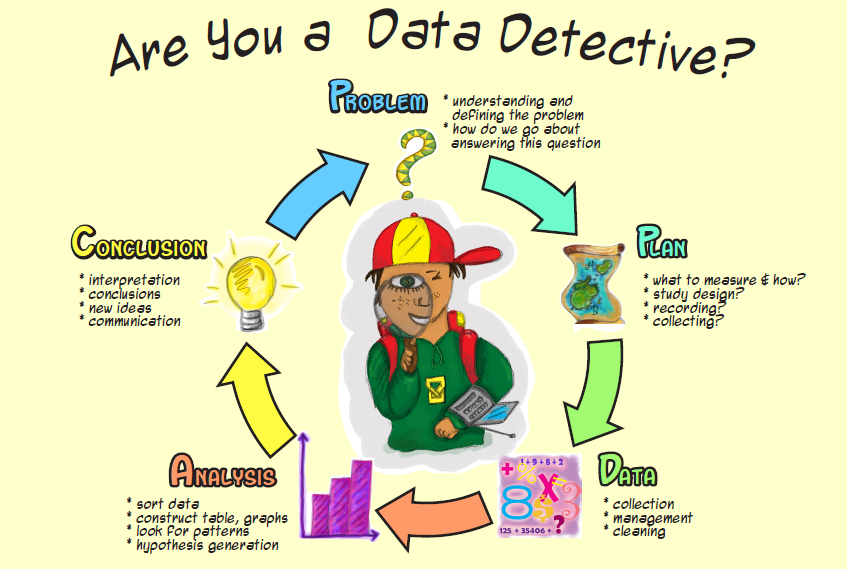
|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Subject:**Mathematics & Statistics | | | | **Year Level:**7 - 10 | | **Curriculum Level:**1-6 | | **Duration:** 4 weeks | |
| **Standard Title:** | Statistical Investigations and Statistical Literacy | | | | | | | | |
| **Achievement Objectives:** [**S1-1 S1-2**](http://www.nzmaths.co.nz/level-one-statistics)[**S2-1 S2-2**](http://www.nzmaths.co.nz/level-two-statistics)[**S3-1 S3-2**](http://www.nzmaths.co.nz/level-three-statistics)[**S4-1 S4-2**](http://www.nzmaths.co.nz/level-four-statistics)[**S5-1 S5-2**](http://www.nzmaths.co.nz/elaborations-level-five-statistics) | | | | | | | | | |
| **Key Competencies highlighted in this unit:** | | | **How students will be encouraged to develop the selected competencies during the unit:** | | | **Values highlighted in this unit:** | | | **EOTC opportunities in this unit:** |
| Thinking | |  | * Pose questions for exploration * Plan and carry out an investigation * Make Connections | | | Excellence  Innovation, Enquiry and Curiosity  Diversity/Equity  Community and Participation  Ecological Sustainability  Integrity  Respect |  | | * Design a questionnaire and administer this to students from different classes or to the community * Identify a problem from Year 7 – 10 camps * Look at water safety and the swimming ability of De La Salle students * Identify a problem within the community or school to support ecological sustainability and follow the PPDAC cycle to improve this issue (An example could be litter within the school) |
| Using language, symbols and texts | |  | * Choose appropriate graphical displays * Interpret findings in context * Use words and symbols in generalisations | | |  |  | |  |
| Managing self | |  | * Work Independently * Manage time effectively * Set achievable goals | | |  |  | |  |
| Relating to others | |  | * Actively listen * Negotiate meaning * Compare and contrast ideas | | |  |  | |  |
| Participating and contributing | |  | * Participate actively in group presentations * Empower and enable others in a group * Show awareness of others * Contribute own ideas to discussions | | |  |  | |  |
|  | |  |  | | |  |  | | **Managing Authenticity:** |
|  | |  |  | | |  |  | | * Oversee data collection * Monitor group work and collaboration * Individual assessment can be included in group presentations to assess that learning has taken place |
| **Catholic Character Content:** | | | **Principles:** | | | | | | **Cross-Curricular Links:** |
| * Investigation on Bible reading by adapting [Assessment resource Bank](http://arb.nzcer.org.nz/) question “sentence lengths” | | | High Expectations  Treaty of Waitangi  Cultural Diversity  Coherence | |  | Inclusion  Learning to Learn  Community Engagement  Future Focus |  | | * Using data from P.E classes to do analysis – beep test scores, push up and sit up scores, vertical jump * Look at a relationship covered in science to make meaningful connections |
| **Catering for Gifted & Talented Students:** | | | **Catering for Maori/Pacifica Students:** | | | **Catering for Learners with Difficulties:** | | | **Literacy / Numeracy Strategies:** |
| **https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png** [Figure this challenges](http://www.figurethis.org/challenges/math_index.htm)  **https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png** [ISLP Poster Competition](http://iase-web.org/islp/Poster_Competition_2014-2015.php)   * Critique the PPDAC cycle | | | **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [PPDAC Poster (Maori Version)](#ppdacpostermaori)  **http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg** [Pasifika Education Plan](file:///T:\Mathematics\Administration\Professional%20reading\PasifikaEducationPlan2013To2017.pdf)  **http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png** [Effecting change for Pasifika students](file:///T:\Mathematics\Administration\Professional%20reading\Effecting+change+for+Pasifika+students.doc)**http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg** [Supporting Pasifika success](file:///T:\Mathematics\Administration\Professional%20reading\SupportingPasifikaSuccess.pdf) http://kr.rutka.net/slike/ikone/galerijaLogo.png [Pasifika Compass](file:///T:\Mathematics\Administration\Professional%20reading\pacifica%20compass.jpg) | | | **http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png** [I Can Do Sheet](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\I%20Can%20Do%20Sheet%20Statistics.doc)  **http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png** [Year 9 Student Handbook](file:///T:\Mathematics\Student%20handbooks\year%209%20student%20handbook%20mathematics.docx)  **http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png** [Year 10 Student Handbook](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Student%20handbooks\year%2010%20student%20handbook%20mathematics.docx) | | | * Scaffolding tasks with students * The use of writing frames   **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [Use of Glossaries](#glossary)  **http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg** [Forbidden words activity](file:///T:\Mathematics\Junior%20Mathematics\Literacy\forbidden-words.pdf) |
| **Diagnostic Assessment:** | | | **Formative Assessment:** | | | **Student Feedback/Feedforward:** | | | **Teacher Reflection / Evaluation:** |
| * NumPa testing * ASTTLE testing | | | * Investigations within class   **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [KareKare data investigation](#formative)  **[https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t](#formative)** [Kiwi Capers investigation](#formative)  **[https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t](#formative)** [Sports investigation](#formative) | | | * Reporting on National standards * E-AsTTle data * Numpa testing data | | | * Faculty Professional development * Annual review of Unit planning |
| **Summative Assessment:** | | |  | | |  | | |  |
| **https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t** [Investigation will be summarised in a presentation.](#summative)  **https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png** [ISLP Poster Competition](http://iase-web.org/islp/Poster_Competition_2014-2015.php) | | |  | | |  | | |  |

Teaching Unit Plan and Resources for years 7 – 10

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Timeline** | **Achievement Objectives** | | | **Literacy and ICT** | | **Resources and Activities** | | **Page references** |
| **Week 1** | * Introduction to the PPDAC cycle * Investigative questions * Planning an investigation * Gathering and sorting data | | | [The PPDAC Cycle explained](https://www.youtube.com/watch?v=lJWdFvYXvnk)  https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSxOlpiA9lC3O62yR4Z4SYCZ_1K02VNvRRuheWqXpgVZxEW6-Ha[Amazing Statistics Video](file:///T:\Mathematics\Videos\Statistics\Amazing%20Statistics.flv)  https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSxOlpiA9lC3O62yR4Z4SYCZ_1K02VNvRRuheWqXpgVZxEW6-Ha[200 years that changed the world](file:///T:\Mathematics\Videos\200_years_that_changed_the_world_high.mp4)  https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSxOlpiA9lC3O62yR4Z4SYCZ_1K02VNvRRuheWqXpgVZxEW6-Ha [Explaining a sample](file:///T:\Mathematics\Videos\Statistics\Explaining%20a%20sample.avi)  http://i-cdn.phonearena.com/images/article/49766-image/Small-YouTube-for-Android-update-improves-apps-search-feature.jpg [Bias in Sample Selection](https://www.youtube.com/watch?v=3zc_t1MwrPw#t=11) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - CLAWS](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Statistics%20Claws%20activity.pdf) | | https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [NZMATHS](http://www.nzmaths.co.nz/resource/claws) |
| https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Figure it out activity - Social Sounds](http://www.nzmaths.co.nz/resource/social-sounds) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics L4 Bk2 Page 1](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics4b2.pdf) |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity – Open or closed](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Open%20Or%20Closed.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics L4 Bk2 Pg 10-11](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics%202-3.pdf) |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - Logo Appeal](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Logo%20Appeal.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics L2/3 Pg 18](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics%202-3.pdf) |
| **Week 2** | * Displaying data in multiple ways * Identifying trends, patterns, variations, spread, relationships * Interpreting results in context   https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t[Year 10 PPDAC overview](#y10ppdac)  https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t [PPDAC poster](#ppdacposter)  https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTnXG7oXQaUKH-bApSiAU6Vtvuc_q_WVLmQII2vixkQKl9Nol1t [PPDAC poster (Maori)](#ppdacpostermaori) | | | http://i-cdn.phonearena.com/images/article/49766-image/Small-YouTube-for-Android-update-improves-apps-search-feature.jpg [OESM video analysing data](https://www.youtube.com/watch?v=L-ur3pRYKFk)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Module 3 – Which Graph?](http://www.nzmaths.co.nz/resource/which-graph)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Module 4 – Making evaluations](http://nzmaths.co.nz/resource/making-evaluations)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Census@schools Data Viewer](http://new.censusatschool.org.nz/tools/data-viewer/)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [NLVM Boxplots (requires java)](http://nlvm.usu.edu/en/nav/frames_asid_200_g_4_t_5.html?open=instructions)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [BBC Handling data](http://www.bbc.co.uk/bitesize/ks2/maths/data/)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Khan Academy videos](https://www.khanacademy.org/math)  [Bias in a survey](https://www.youtube.com/watch?v=RwMmrUEVW4U) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Presenting data](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Year%207%20&%208%20eBooks\) | | Hooked on Statistics Pg 22-36 |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Interpreting data](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Year%207%20&%208%20eBooks\) | | Hooked on Statistics Pg 37-44 |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - My Town](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\My%20Town.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Level 2/3 Pg 12](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics%202-3.pdf) |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - Too much Telly?](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Too%20Much%20Telly.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Level 2/3 Pg 6](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics%202-3.pdf) |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - Discussing Data](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Discussing%20Data.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Level 2/3 Pg 14](file:///\\internal.delasalle.school.nz\shared\staff\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics%202-3.pdf) |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [How long is a name?](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\How%20long%20is%20a%20name.pdf) | | From Census@schools |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Figure it out activity - Wild about Juice](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\Wild%20about%20Juice.pdf) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Level 3 Pg 1](file:///T:\Mathematics\Junior%20Mathematics\Figure%20It%20Out%20Series\statistics3.pdf) |
| **Week 3** | Investigations part 1   * Select an investigative question to explore the PPDAC cycle, linking the first two weeks of learning into one project. * S5-2 Critique the sampling process for years 9 and 10 | | | https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Spreadsheet tutorials](http://nzmaths.co.nz/spreadsheet-tutorial)  Learning objects [Graph Investigator](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Digital%20Learning%20Objects\Graph%20explorer\index.html) | | https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Sports Investigation](http://www.nzmaths.co.nz/resource/sports-statistics) | | From NZMATHS |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Ideas for Statistical Investigations](file:///T:\Mathematics\Junior%20Mathematics\Year%207%20&%208%20eBooks\Maths%20eBooks) | | Hooked on Statistics Pg 45-47 |
| http://www.designdownloader.com/item/pngs/folder_1/folder_1-20110810112846-00003.png [KareKare Investigation](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kare%20kare%20data%20set) | | http://www.trainuk.co.uk/sites/default/files/styles/thumbnail/public/excel-2010-icon_5.png [Karekare data cards](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kare%20kare%20data%20set\karekare-cards1.xls)  http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Survey questions](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kare%20kare%20data%20set\survey%20questions.pdf)  http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png [Blank graph](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kare%20kare%20data%20set\Popliteal%20length%20blank%20graph.doc) |
| http://www.designdownloader.com/item/pngs/folder_1/folder_1-20110810112846-00003.png [Kiwi Capers Investigation](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kiwi%20Capers) | | http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png [Teacher Instructions](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Kiwi%20Capers\teacher%20instructions.doc) |
| https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Assessment resource Bank](http://arb.nzcer.org.nz/) | | ARB’s website |
| **Week 4** | Investigations part 2   * Students are familiar with the PPDAC cycle and so now they should be able to investigate a problem and display their findings in classrooms.   Assessment can be in the form of (but not limited to):   * Poster * Report * Power-Point Presentation * Video Presentation * [ISLP Poster Competition](http://iase-web.org/islp/Poster_Competition_2014-2015.php) | | | http://i-cdn.phonearena.com/images/article/49766-image/Small-YouTube-for-Android-update-improves-apps-search-feature.jpg[Lego city investigation video](https://www.youtube.com/watch?v=VaUepDKwErI)  For more investigation ideas, refer to:  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Statistical Investigations Units of Work](http://nzmaths.co.nz/statistical-investigations-units-work)  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Statistical Literacy Units of work](http://nzmaths.co.nz/statistical-literacy-units-work) | | http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Ideas for statistical investigations](file:///T:\Mathematics\Junior%20Mathematics\Year%207%20&%208%20eBooks\Maths%20eBooks) | | Hooked on Statistics Pg 45-47 |
| http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Project exemplar](file:///T:\Mathematics\Junior%20Mathematics\Investigations\Year9StatsProjectExemplar.pdf)  http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Statistics Project Rubric](file:///T:\Mathematics\Junior%20Mathematics\Investigations\Year9StatsProject%20rubric.pdf)  http://www.bre2.net/pdfs/pdf_thumbnail_icon.jpg [Superhero Statistics Exemplar Y7 & Y8](file:///T:\Mathematics\Junior%20Mathematics\Investigations\Superhero%20Statistics%20exemplar.pdf) | |  |
| http://upload.wikimedia.org/wikipedia/commons/4/48/Microsoft_Word_logo.png [Pie investigation](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Pie%20sales\pie_sales.doc)  http://www.trainuk.co.uk/sites/default/files/styles/thumbnail/public/excel-2010-icon_5.png [Pie Data](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Pie%20sales\pies_raw.xls) | | http://www.rebiun.org/PublishingImages/iconos/icono_powerpoint.png [Pie Power-Point](file:///T:\Mathematics\Junior%20Mathematics\Statistics%20and%20the%20PPDAC%20cycle\Pie%20sales\pie_sales.ppt) |
| https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Paper plane Investigation](http://www.nzmaths.co.nz/resource/paper-planes) | | From NZMATHS |
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NZC Statistics Levels 1 - 6

| Level | Statistical Investigation | Statistical Literacy |
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| 1 | Conduct investigations using the statistical enquiry cycle:  •posing and answering questions  •gathering, sorting and counting, and displaying category data •discussing the results.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 1](http://www.nzmaths.co.nz/statistical-investigations-level-1) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 1 Elaborations](http://www.nzmaths.co.nz/elaborations-level-one-statistics) | Interpret statements made by others from statistical investigations and probability activities.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 1](http://www.nzmaths.co.nz/statistical-literacy-level-1) |
| 2 | Conduct investigations using the statistical enquiry cycle:  •posing and answering questions  •gathering, sorting, and displaying category and whole-number data  • communicating findings based on the data.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 2](http://www.nzmaths.co.nz/statistical-investigations-level-2) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 2 Elaborations](http://www.nzmaths.co.nz/elaborations-level-two-statistics) | Compare statements with the features of simple data displays from statistical investigations or probability activities undertaken by others.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 2](http://www.nzmaths.co.nz/statistical-literacy-level-2) |
| 3 | Conduct investigations using the statistical enquiry cycle:  • gathering, sorting, and displaying multivariate category and whole number data and simple time-series data to answer questions • identifying patterns and trends in context, within and between data sets • communicating findings, using data displays.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 3](http://www.nzmaths.co.nz/statistical-investigations-level-3) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 3 Elaborations](http://www.nzmaths.co.nz/elaborations-level-three-statistics) | Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 3](http://www.nzmaths.co.nz/statistical-literacy-level-3) |
| 4 | Plan and conduct investigations using the statistical enquiry cycle:  • determining appropriate variables and data collection methods  •comparing distributions visually  •communicating findings, using appropriate displays. •gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships, and trends  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 4](http://www.nzmaths.co.nz/statistical-investigations-level-4) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 4 Elaborations](http://www.nzmaths.co.nz/elaborations-level-four-statistics) | Evaluate statements made by others about the findings of statistical investigations and probability activities.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 4](http://www.nzmaths.co.nz/statistical-literacy-level-4) |
| 5 | Plan and conduct surveys and experiments using the statistical enquiry cycle:  •determining appropriate variables and measures •considering sources of variation  •gathering and cleaning data  •comparing sample distributions visually, using measures of centre, spread, and proportion  •presenting a report of findings.  •using multiple displays, and re-categorising data to find patterns, variations, relationships, and trends in multivariate data sets  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 5](http://www.nzmaths.co.nz/statistical-investigations-level-5) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 5 Elaborations](http://www.nzmaths.co.nz/elaborations-level-five-statistics) | Evaluate statistical investigations or probability activities undertaken by others, including data collection methods, choice of measures, and validity of findings.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 5](http://www.nzmaths.co.nz/statistical-literacy-level-5) |
| 6 | Plan and conduct investigations using the statistical enquiry cycle:  •justifying the variables and measures used;  •managing sources of variation, including through the use of random sampling;  •making informal inferences about populations from sample data;  •justifying findings, using displays and measures.  •identifying and communicating features in context (trends, relationships between variables, and differences within and between distributions), using multiple displays;  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Investigations Level 6](http://www.nzmaths.co.nz/statistical-investigations-level-6) https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Level 6 Elaborations](http://www.nzmaths.co.nz/elaborations-level-six-statistics) | Evaluate statistical reports in the media by relating the displays, statistics, processes, and probabilities used to the claims made.  https://cdn1.iconfinder.com/data/icons/prettyoffice8/256/Insert-hyperlink.png [Key Ideas for Statistical Literacy Level 6](http://www.nzmaths.co.nz/statistical-literacy-level-6) |





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| Y10 PPDAC OVERVIEW | Problem  icon-problem | Plan  icon-plan | Data  icon-data | Analysis  icon-analysis | Conclusion  icon-conclusion |
| **Vocabulary**  These words can be used across the PPDAC cycle | Relationship  I wonder / I notice  Compare  Difference | Who what why when how  Random, cluster, sampling, stratified, self-selected sample  Fair and bias | Graphs and displays  pie, dot plot scatter plot | Outliers, line of best fit, analysis, trend, relationship, +ve –ve strong weak UQ LQ IQR  Mean median mode | Relationship analysis justify conclude |
| **What to teach** | Give students a list of possible questions | Explore difference between population and sample  Introduce /use census at schools  Discuss why we use sample and not population eg NZ census | Explore a variety of different graphs students to identify which graph best to display data based on problem | How to draw a dot plot / scatter plot | Look at exemplars of conclusions and how they relate to PPDAC cycle. |
| **What students will complete** | Students should be able to identify what a suitable question looks like and possibly write their own statistical problems | Identify Variables  Collect data   * Census at schools * Survey * questionnaires | Construct  Table  Students to explain why they chose their specific graph eg scatterplot | Construct appropriate graphs or displays | Answer question explaining the relationship between the variables  Include a list how to improve on their Investigation eg eliminate outliers to have a more reliable conclusion. |

Glossary

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| * Average | * Fair and Bias | * Box and Whisker Plot | * Shape | * Problem |
| * Mean | * Data | * Dot Plot | * Distribution | * Plan |
| * Median | * Continuous | * Bar Chart | * Cluster | * Data |
| * Mode | * Discrete | * Histogram | * Spread | * Analysis |
| * Frequency | * Cluster | * Pictogram | * Skew | * Conclusion |
| * Range | * Outcome | * Pie Chart | * Trend | * Summary |
| * Inter-Quartile Range | * Population | * Scatter plot | * Relationship | * Inference |
| * Upper Quartile | * Sample | * Stem and Leaf Plot | * Random | * Predict |
| * Lower Quartile | * Limitations | * Positive | * Compare | * Difference |
| * Unusual | * Representative | * Negative |  |  |