Pimpama State School
2026 Science Fair Competition

Pimpama State School is once again holding a Science Fair Competition! This is a school wide competition where students are awarded prizes in each category. In order for students to enter the competition they may choose to complete a project in one of the five categories (outlined below and in this booklet). These entries will then be judged using an age-appropriate criteria and will all be proudly displayed at the Science Fair on **Friday 21st of August (Term 3, Week 6)** in the school hall.

Please note that although guidance can be given to children whilst undertaking work on their Science Fair entry, the work is to be completed by the student.

Following this event, student projects will be selected to gain entry into the 'Griffith University Gold Coast Science Competition' and then the 'Science Teachers Association of Queensland' (STAQ) Science Contest. Further to this, students who excel in these competitions can be selected as entrants to the 'BHP Billiton Science Awards'.

Students may choose from **any one** of the following categories which are outlined in this booklet:

PROJECT CATEGORIES
Scientific Investigations
Engineering and Technology Projects
Classified Collections
Communicating Science
Environmental Action Project

Students may work individually or in pairs only.

Students will be judged in the following age categories: Prep, Years 1-2, Years 3-4, Years 5-6

**Please refer to the following websites if you are in need of *'ideas'* for a project:
https://www.sciencebuddies.org
http://www.sciencekids.co.nz
https://www.education.com/science-fair/

Important Dates to Remember!

To enable time to plan the Science Fair adequately, please advise your science teacher of the category in which you have chosen to undertake by **Friday 24th July.** If you have any queries or questions, please do not hesitate to contact your classroom teacher, Miss Lord (Prep – Year 2 STEM Teacher) or Miss Walduck (Year 3 – Year 6 Science Teacher) by email.

Miss Lord: klord21@eq.edu.au

Miss Walduck: alclo0@eq.edu.au

Important Dates to Remember!!

Friday 24th July (week 2):	Advise your science teacher of the category for your project
Friday 14th August (week 5):	All projects are due at school
Friday 21st August (week 6):	Pimpama State School Science Fair – (viewing and judging)
TBA:	Winners announced at Assembly and prizes given
Thursday 3rd September (week 8):	Griffith University Gold Coast Science Competition
TBA:	STAQ Science Competition

Extra information on Griffith University Gold Coast Science Competition can be found at:
https://app.griffith.edu.au/events/event/53747
http://www.staq.qld.edu.au/queensland-science-contest/

SCIENCE FAIR CLUB

Need help with your project? Come to Science Fair Club

When: Thursday 1st Break (Seniors)

Tuesday 1st Break (Juniors)

Where: Science Room - Starting Term 2 Week 9

STEM Room - Starting Term 3

PROJECTS DUE:

FRIDAY 14TH AUGUST

DATE OF SCIENCE FAIR:

FRIDAY 21ST AUGUST

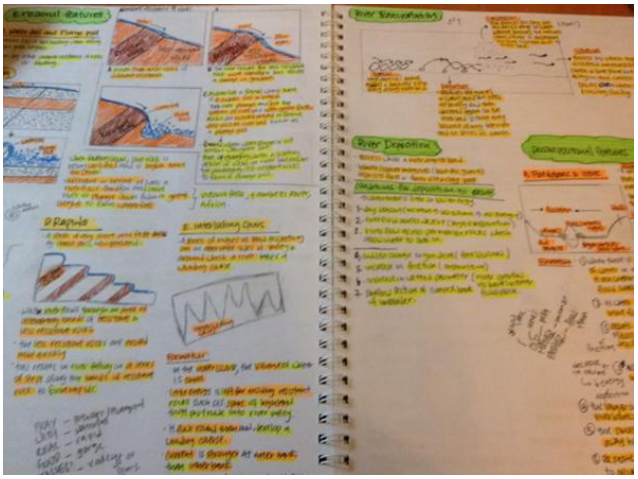
EVERY ENTRY MUST INCLUDE A SCIENTIFIC JOURNAL

What is a Scientific Journal?

The Scientific Journal is **VERY IMPORTANT** in showing the purpose behind the study, and the way in which the question evolved and how the project progressed over time. A Scientific Journal is a record of the student's learning and investigation process. Scientists use journals to track ideas, observations, experiments, and conclusions.

Students should keep a journal from the very beginning of their project.

Your scientific journal is a record of your entire project journey. Scientists use journals to track ideas, experiments, discoveries, problems, and learning over time.



Your journal should include:

- Project title
- Dates for all work completed
- Questions, ideas, and wonderings
- Research notes
- Predictions or hypotheses
- Planning sketches or diagrams
- Experiment results and observations
- Tables, graphs, photos, or drawings
- Problems or "disasters" you encountered
- Changes or improvements made during the project
- Reflections, conclusions, and what you learned
- Acknowledgement of help from parents or teachers

A strong scientific journal will:

- Show how your project developed over time
- Include both successes and mistakes
- Demonstrate scientific thinking and problem-solving
- Contain handwritten or typed notes
- Use photos and diagrams to explain the process
- Be neat, organised, and easy to follow
- Use correct spelling and clear explanations

Remember: judges want to see your learning journey, not just the final result!

***IF YOU WOULD LIKE MORE EXAMPLES OF SCIENTIFIC JOURNALS, ASK YOUR SCIENCE TEACHER.**

OPTION ONE: SCIENTIFIC INVESTIGATIONS

This category is eligible for the STAQ (Science Teachers Association of QLD) Science competition with pathways to the BHP Billiton Science and Engineering Awards.

The Task:

- Design and perform a scientific investigation and report on the results obtained and the conclusions reached.

What to do:

- Choose a topic, there are no restrictions.
- Keep a day-by-day Scientific Journal that explains what you do and why.
- Ask questions about your topic.
- Collect the necessary background information about your topic.
- Design and perform one or more experiments that will make up the
- investigation.
- Analyse the results and draw your conclusions.
- Present a report to tell others what you did and what you found out.
- Include any references and acknowledge the assistance you receive.

Criteria

Please read the following criteria carefully which is specific to each category. This criterion will be used to judge each entry.

Judging Area	*What Judges Are Looking For*
RELEVANCE OF TOPIC	The student clearly explains why they chose the investigation topic and gives useful background information. They make a prediction (hypothesis) and explain why they think this result might happen.
PLAN OF INVESTIGATION (DESIGN)	The project shows a fair test investigation. The student clearly identifies and explains the variables (what changes, what stays the same, and what is measured). There is evidence that safety was considered and that the student planned how to collect reliable data or evidence.
RESULTS	The student presents results clearly using graphs, tables, diagrams or other suitable displays. The information should match the student's age and year level. The student identifies and discusses any mistakes, problems or difficulties that occurred during the investigation.
DATA AND CONCLUSIONS	The conclusion explains the main findings of the investigation and answers the original aim or hypothesis. The student communicates their findings using scientific language and representations that are appropriate for their age.
UNDERSTANDING OF DATA	The student reflects on the investigation and suggests sensible improvements to the method or data collection process. For example: "If I did this again…" or "I repeated the process because…"
LEGIBILITY	The investigation is organised, easy to follow and presented neatly in a way that suits the student's age level.
ACKNOWLEDGMENTS (Scientific Literacy)	The student includes a list of resources used, such as books, websites or other references, showing appropriate research for their age and year level.
EVIDENCE – SCIENTIFIC JOURNAL	A notebook or journal shows evidence of the student's thinking, learning and decision-making throughout the project. Notes should accurately represent the student's own understanding and work.

OPTION TWO: ENGINEERING AND TECHNOLOGY

This category is eligible for the STAQ (Science Teachers Association of QLD) Science competition with pathways to the BHP Billiton Science and Engineering Awards.

The Task

To design and then create a device or product to either

- demonstrate a scientific principle
- solve a problem
- or offer a different approach to a problem.

What to do:

- The project must satisfy one of the following:
    - Demonstrate a scientific problem;
    - Solve a problem; or
    - Offer a different approach to a problem.
- Provide a report clearly explaining how the model works or will work and what it does.
- Provide details on why you chose the problem and how it is relevant or important.
- Test your model and include test results.
- Reflect on how your model solves the problem.
- Keep a day-by-day Scientific Journal that explains what you do and why.

*Please see Appendix for specific guidelines to strictly adhere to if you wish to be considered for external competitions.

Criteria:

Please read the following criteria carefully which is specific to each category. This criterion will be used to judge each entry.

Judging Area	*What Judges Are Looking For*
RELEVANCE OF TOPIC - DEFINE	The student clearly explains the problem they are trying to solve. The problem should be meaningful, age appropriate and relevant. The student explains why solving the problem matters.
PROJECT AIMS	The project includes realistic and sensible goals that connect clearly to the identified problem.
PLAN OF THE PROJECT - IDEATE	The student provides evidence of early design ideas through notes, sketches, diagrams, research, surveys or brainstorming. There is evidence of planning how the problem will be solved.
SAFETY CONSIDERATIONS	The project shows that safety was considered during the design and construction process. This may include adult support, safe material choices or safe working methods.
PROTOTYPE DESIGN AND CONSTRUCTION	The student explains why materials were chosen and clearly shows the construction process through written steps, photographs or diagrams appropriate to their age level.
TESTING AND IMPROVEMENT	The project includes evidence of testing the prototype, such as photos, videos, surveys, tables or graphs. The student explains what worked, what failed and what improvements could be made. Changes made after testing are recorded in the notebook or journal.
DATA COLLECTION	The student collects and presents evidence from testing in an age-appropriate way, such as surveys, measurements, tables, graphs or photo evidence with captions.
FINAL DESIGN	Evidence of the final design is presented clearly. The project must fit within the required size limits: 76 cm deep, 12 cm wide and 10 cm high.
PROJECT PRESENTATION	The project includes a 2–5 minute presentation showing the device or product working. This may be a video, PowerPoint, GIF or online link.
EVIDENCE – SCIENTIFIC JOURNAL	The student acknowledges any help received and explains which parts were completed independently and which involved assistance or guidance.

OPTION THREE: CLASSIFIED COLLECTIONS

The Task:

To compile and present a scientific classified collection to show relationships between the items in the collection, or to assist in their recognition. Classified collection examples include a collection of specimens of plants, rocks, insects, shells etc.

What to do:

- Plan, collect, classify and display/organise specimens of a collection to:
    - Help in the understanding of the material that is being collected

      or

    - Help in the solution of some other problem
- Explain how they have classified the collection using a specific legend or key and an explanation in their notebook about it.
- Keep a day-by-day Scientific Journal that explains what you do and why.

IMPORTANT!

Protected Species

Be aware that there are a number of protected species and protected areas in Queensland where collecting is prohibited. They are protected because they are valuable or vulnerable. Ensure that collected specimens are not listed by the Department of Environment, Science and Innovation or collected from a protected area.

Go to : http://www.des.qld.gov.au/wildlife

*Please see Appendix for ideas and a guide to collecting in different fields of natural science.

Criteria:

Please read the following criteria carefully which is specific to each category. This criterion will be used to judge each entry.

Judging Area	*What Judges Are Looking For*
COLLECTION	The student collects and identifies specimens or items that can be grouped scientifically in a logical and sensible way.
CLASSIFICATION AND RESEARCH	The student groups items based on similarities and differences and explains the reasoning behind the classification. Categories should be clearly labelled and appropriate for the student's age level.
DISPLAY AND PRESENTATION	The collection is clearly presented, organised and easy to understand. The display helps viewers recognise relationships between the items in the collection.
SCIENCE UNDERSTANDING	The student applies science knowledge to create a sensible and informed classification system for the collection.
CREATIVITY	The collection and display show originality and creativity in the choice of specimens or how they are presented.
ACKNOWLEDGMENTS (Scientific Literacy)	The student includes a list of resources used, such as websites, books or references, showing suitable research for their age and year level.
EVIDENCE – SCIENTIFIC JOURNAL	The student provides notes, workings or other evidence showing that the project reflects their own learning, understanding and work.

OPTION FOUR: COMMUNICATING SCIENCE

The Task:

To explain and communicate information about a scientific concept to a specified audience in an engaging and creative way.

What to do:

- Present a scientific concept using chosen presentation format.
- Include a written report.
- Keep a day-by-day Scientific Journal that explains what you do and why.

Formats may include:

- Model
- Poster
- Cartoon/Comic Strip
- PowerPoint Presentation
- Game
- Multi-media presentation

Your written report should:

- Clearly explain the scientific concept you have chosen using age-appropriate scientific vocabulary.
- Include your background research information, references and permission to use copyrighted material (if applicable).
- Identify and describe the target audience (examples could be: preschool students, aged pensioners without a
- scientific background, the general community etc.).
- Justify your choice of communication medium for your target audience.
- Choice of Communication Mode.

*Please see Appendix for specific guidelines for each presentation format.

Criteria:

Please read the following criteria carefully which is specific to each category. This criterion will be used to judge each entry.

Judging Area	What Judges Are Looking For
TOPIC CHOICE	The student clearly explains the science topic or concept they selected and why they chose it. Background research supports the choice of topic.
PROJECT – AUDIENCE, RESEARCH AND PLANNING	The chosen format or medium (such as a poster, comic, game, website, model or video) effectively communicates the science concept. The student explains why this format suits the intended audience. Planning for the project is clearly shown.
SCIENCE UNDERSTANDING	The project demonstrates accurate science knowledge and explains the concept in a way that is appropriate for the intended audience and age group.
COMMUNICATION	The student clearly communicates observations, ideas and findings using suitable visual and written representations. The project is engaging, visually appealing and designed with the audience in mind.
VALIDITY	The project meets the requirements of the chosen category, such as cartoon/comic strip, game, poster, PowerPoint presentation, website, model or video.
PRESENTATION	The final presentation is informative, effective and demonstrates creativity, originality or ingenuity.
ACKNOWLEDGMENTS (Scientific Literacy)	The student includes a list of resources used, such as websites, books or references, showing appropriate research for their age and year level.
EVIDENCE – SCIENTIFIC JOURNAL	The notebook or journal contains evidence of scientific thinking, including detailed notes, decisions and planning processes.

OPTION FIVE: ENVIRONMENTAL ACTION

The Task:

To identify, research, investigate and present recommendations about a local environmental issue.

Some examples of local action projects:

Green Power	Rainwater Harvesting	Energy Conservation
Recycling	Pollution	Soil Quality
Greenhouse Effect	Organic Garden	Air Quality
Renewable Energy	Water Purification	Waste Management
Climate Change	Balanced Ecosystem	Habitat Protection

What to do:

- Identify and research a local environmental issue.
- With the help of people in the community, set about investigating and resolving the problem.
- Choose the way you will present your project e.g. poster or report.
- Provide recommendations for future action.
- Keep a day-by-day Scientific Journal that explains what you do and why.

Criteria:

Please read the following criteria carefully which is specific to each category. This criterion will be used to judge each entry.

Judging Area	What Judges Are Looking For
RELEVANCE OF TOPIC	The student clearly identifies and explains a local environmental issue suitable for investigation. They explain the problem and why action is needed.
COMMUNITY RELEVANCE	The student explains how the project is relevant to the community and provides realistic possible outcomes for the action project. Planning tools such as brainstorming charts, diagrams or lists may be included.
RESEARCH AND PLANNING	The student gathers information about the environmental issue using age-appropriate methods such as surveys, questionnaires, letters or data collection. There is clear evidence of planning how to address the issue.
UNDERSTANDING OF THE ISSUE	The project demonstrates a clear understanding of the environmental problem and includes a sensible action plan to help solve or improve the issue.
REFLECTION OF OUTCOMES	The student explains how their actions addressed the problem and how the results connect back to the original goals of the project.
CREATIVITY	The student demonstrates an original and creative approach to solving the environmental issue in a way that suits their age and knowledge level.
PRESENTATION	The project is clearly presented as a poster, report or video. The display should be organised, easy to understand and suitable for the student's age level.
EVIDENCE – SCIENTIFIC JOURNAL	A reflective journal or notebook records the problem, actions taken, planning, testing and learning throughout the project. It should clearly show the student's own scientific thinking, understanding and contribution to the project. Any assistance received should also be acknowledged.

APPENDIX

Engineering and Technology

Guidelines to strictly adhere to if you wish to be considered for external competitions.

The entry must be a physical device or product with dimensions not exceeding 76cm in depth, 122cm in width and 100cm in height.
Entries that make use of 240v power must be accompanied by a signed note of compliance as being supervised during the construction and testing by an appropriately qualified person.

Although some of the following may be used in the development phases, they will NOT be accepted as part of the display:
1) Living organisms, including plants
2) Soil, sand, rock, and/or waste samples, even if permanently encased in a slab of acrylic
3) Taxidermy specimens or parts
4) Preserved vertebrate or invertebrate animals
5) Human or animal food
6) Human/animal parts or body fluids (for example, blood, urine)
7) Plant materials (living, dead, or preserved) that are in their raw, unprocessed, or non- manufactured state
8) All chemicals including water (Projects may not use water in any form in a demonstration)
9) All hazardous substances or devices (e.g. poisons, drugs, firearms, weapons, ammunition, reloading devices, and lasers)
10) Dry ice or other sublimating solids
11) Sharp items (for example, syringes, needles, pipettes, knives)
12) Flames or highly flammable materials
13) Batteries with open- top cells
14) Glass or glass objects
15) Any apparatus deemed unsafe by the coordinator or judges (for example, large vacuum tubes or dangerous ray- generating devices, empty tanks that previously contained combustible liquids or gases, pressurized tanks, etc.)

Classified Collections

A guide to collecting in different fields of natural science:

Botany
A classified plant collection might deal with a group of plants (e.g. ferns, conifers, palms, grasses, eucalypts, wattles), it might be the flowers of plants that are found in a particular area, or it might be a collection classified according to leaf shapes, flower or fruit characters, or chemical components (aromatic leaves), or it may be for a purpose such as identifying weeds in a locality. In these cases, it is important to explain why the collection was undertaken, and to show how the classification was developed.

- Use the new Griffith University “Grows at Griffith” App to assist you to identify your plant species - it provides plant family name, scientific name, location, distribution and other interesting details.
- A collection of seeds might investigate the relationships between seed composition (carbohydrate, protein, fat) and taxonomic group, or between seed size and plant habit (food plant, weed, and forest plant).
- A collection of weeds would ideally include some information that assisted in their identification (a key of some sort as discussed below), and comments on issues such as their importance, origin, manner of spread and difficulty of control.
- A collection of herbs might examine how they are distributed between families of plants, their regions of origin, and how they are used (directly or after processing).
- How to preserve plant specimens:
    - Choose specimens that contain stem, leaf, flowers, fruit/nut, seeds if possible.
    - Layout newspaper (greater than the size of specimen), add 2 layers of paper towel, place specimen on paper towel, add 2 more layers of paper towel, then a layer of newspaper; continue process with the next specimen; press specimens by placing in a flower press or by placing a heavy object on top e.g. Books; change paper towel and paper daily; continue for 1-2 weeks.
- Display specimens with a label: with common name, scientific name, date of collection, location of collection.

Geology
A classified geological collection becomes more valuable when the relationships between rock types are examined, or when the collection is assembled to assist in the identification of rocks or minerals. Relationships between rock types may be examined on a local or a larger scale, but there should be a question asked concerning these relationships. An assemblage of rock types for identification should concentrate either on a class of rocks or on minerals that are important in a locality or region (e.g. important commercial minerals).

- Display specimens with a label: e.g. Identification, date of collection, location of collection

Entomology

A classified insect collection might concentrate on the insects occurring in a backyard over a period of time, or it might concentrate on a particular group of insects that can be collected from a region, or it might survey the orders of insects that can be collected in a region. The purpose for the collection should be to increase understanding of insects, and this purpose should be made clear in the Scientific Journal.

- Displaying specimens:
  - See Queensland Museum website for preservation & pinning methods
  - Keep display enclosed with moth balls
  - Labelling: Identification, date of collection, location of collection

Zoology

A classified collection of animals (other than insects) will usually be of durable discarded parts (shells or feathers). Shells are used to identify some invertebrates, so the taxonomic relationships may be examined at a number of scales of organisation. Feathers are attractive, but the purpose of collecting and classifying should be more than to simply gather and arrange. There may be an opportunity to examine the relationship between feather size and bird size, or habitat (for example, is it possible to show that water birds have different feathers from land birds?), so there is a question behind the collection.

- Display specimens with a label: e.g. Identification, date of collection, location of collection

Communicating Science

Guidelines for each presentation format.

Poster

- A single or series of diagrams/paintings/drawings with text which communicates a scientific concept.
- The poster must be "flat" or 2D two dimensional.
- The presentation must not exceed 850mm x 1200mm.
- The images must not be subject to copyright or a letter stating that you have received permission to use the work.
- The presentation must be an original piece of work.

Multi-media presentation

- A visual media presentation which communicates a scientific principle.
- The presentation must be an original piece of work not longer than 2 minutes.
- The images must not be subject to copyright otherwise a letter stating that you have received permission to use the work.

Model

- 3D representation of a scientific concept including title, labels
- Not exceed 600mmH x 500mmD x 600mmW (Height x Depth x Width)
- Original construction

PowerPoint Presentation

- A series of slides with/without sound which communicates a scientific concept – with paper printout of slides.
- The presentation must be an original piece of work.
- The images must not be subject to copyright or a letter stating that you have received permission to use the work.

Cartoon/Comic Strip

- A single or series of cartoons which are hand drawn or computer generated which communicate a scientific concept.
- The presentation must not exceed an A1 size (600mm x 840mm).
- The cartoons/images must not be subject to copyright or a letter stating that you have received permission to use the work.
- The comic strip must be an original piece of work.

Game

- The game may be a board or a computer-generated game which communicates a scientific concept.
- The game must be an original piece of work.
- Clear Instructions must be included.