

**CURRICULUM ALIGNMENT &  
CLASSROOM RESOURCES**  
**THE GREENHOUSE INNOVATOR  
COMPETITION**  
*Supported by integratedSTEM*



**GRADE 7 - 10**

## COMPETITION OVERVIEW

The Greenhouse Innovator Competition provides a technology driven immersive project during which selected participating school groups conduct experiments facilitated by **IntegratedSTEM**. Successful entrants will receive the Greenhouse Innovator kits which student groups will use to monitor plant growth and analyse the data that they collect. The experiment and data collection portion of the project will take place across a 4-6 week period. Following this, student groups will draw conclusions from their data and prepare a research poster and supporting video presentation to communicate their findings. Once the project is finalised and supporting elements are submitted, a panel of judges will deliberate and award the top 3 entries based on judging criteria supplied to the schools by **IntegratedSTEM**.

## IMPORTANT DATES

Greenhouse Innovator Kits Distributed: Friday 3 May 2024

Project Start Date: Monday 13 May 2024

Experimentation Period: Monday 13 May - Friday 21 June 2024

Posters & Video Presentation Due: Friday 19 July 2024

## IMPORTANT CONTACTS

*integratedSTEM Education Enquiries*

Lizzy Cleland

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*General Ekka Education Content Enquiries*

[education@ekka.com.au](mailto:education@ekka.com.au)

*Ekka School & Group Bookings Enquiries*

[groupbookings@ekka.com.au](mailto:groupbookings@ekka.com.au)

## COMPETITION DETAILS

### STAGE 1

Classes selected to participate are contacted by **integratedSTEM** to confirm competition involvement and requirements.

### STAGE 2

Equipment will be sent out from May 3. Once delivered the class will receive ongoing support from the **integratedSTEM** team to conduct the project successfully throughout the 4-6 week data collection phase.

### STAGE 3

Once students have collected data they will then process their findings to draw conclusions that will inform their final poster and video presentation submission.

### STAGE 4

Once the finalised projects and supporting elements are submitted, a panel of judges will deliberate and award the winning groups based on judging criteria supplied to the schools by **integratedSTEM**.



## PRIZE DETAILS

All students that submit their final poster and supporting video will receive complementary tickets to Ekka 2024.

### CATEGORY YEARS 7 & 8 PRIZE:

First Place Prize, Trophy, and Sash

### CATEGORY YEARS 9 & 10 PRIZE:

First Place Prize, Trophy, and Sash

### ENTRY:

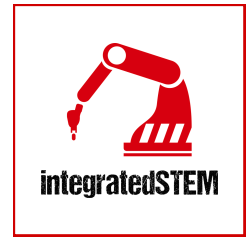
All participating students and teachers will receive a complimentary entry ticket to the Royal Queensland Show (Ekka). Entry tickets are valid for one entry per person per day.

\*Submissions from groups will be judged in two separate categories. Submissions from groups in Years 7 & 8 will be grouped into one category, and submissions from entrants in Years 9 & 10 will be judged in another category. This will be reflected in the judging criteria

## CLASSROOM RESOURCES

### *integratedSTEM - AgTech Education Experts*

The AgTech kits supplied to your school during this project will be supported by integratedSTEM's classroom resources and tech support sessions.



## SUPPORTING RESOURCES

### *OECD (Organisation for Economic Co-Operations and Development)*

How will the global food, agriculture and fisheries system evolve in coming decades? A lot will depend on government policies. [LINK HERE](#)



### *Freethink\* - Hard Reset: Vertical farms could take over the world*

Vertical farming offers better tasting, more sustainable produce. Will it take over farming as we know it? [LINK HERE](#)





## VERSION 9

### *Year 7 Achievement Standard*

By the end of Year 7 students explain how biological diversity is ordered and organised. They represent flows of matter and energy in ecosystems and predict the effects of environmental changes. They model cycles in the Earth-sun-moon system and explain the effects of these cycles on Earth phenomena. They represent and explain the effects of forces acting on objects. They use particle theory to explain the physical properties of substances and develop processes that separate mixtures. Students identify the factors that can influence the development of and lead to changes in scientific knowledge. They explain how scientific responses are developed and can impact society. They explain the role of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models. They identify potential ethical issues and intercultural considerations required for field locations or use of secondary data. They use equipment to generate and record data with precision. They select and construct appropriate representations to organise data and information. They process data and information and analyse it to describe patterns, trends and relationships. They identify possible sources of error in methods and identify unanswered questions in conclusions and claims. They identify evidence to support their conclusions and construct arguments to support or dispute claims. They select and use language and text features appropriately for their purpose and audience when communicating their ideas and findings.



*Creative & Critical Thinking*



*Sustainability*



*Literacy*



*Personal & Social Capability*



*Ethical Understanding*



*Numeracy*



*Digital Literacy*



## VERSION 9

### *Year 8 Achievement Standard*

By the end of Year 8 students explain the role of specialised cell structures and organelles in cellular function and analyse the relationship between structure and function at organ and body system levels. They apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere. They explain how the properties of rocks relate to their formation and influence their use. They compare different forms of energy and represent transfer and transformation of energy in simple systems. They classify and represent different types of matter and distinguish between physical and chemical change. Students analyse how different factors influence the development of and lead to changes in scientific knowledge. They analyse the key considerations that inform scientific responses and how these responses impact society. They analyse the importance of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and explore models. They describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. They select and use equipment to generate and record data with precision. They select and construct appropriate representations to organise and process data and information. They analyse data and information to describe patterns, trends and relationships and identify anomalies. They identify assumptions and sources of error in methods and analyse conclusions and claims with reference to conflicting evidence and unanswered questions. They construct evidence-based arguments to support conclusions and evaluate claims. They select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences.



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## VERSION 9

### *Year 9 Achievement Standard*

By the end of Year 9 students explain how body systems provide a coordinated response to stimuli. They describe how the processes of sexual and asexual reproduction enable survival of the species. They explain how interactions within and between Earth's spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.

Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.



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## VERSION 9

### *Year 10 Achievement Standard*

By the end of Year 10 students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection. They sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory. They describe trends in patterns of global climate change and identify causal factors. They explain how Newton's laws describe motion and apply them to predict motion of objects in a system. They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions. Students analyse the importance of publication and peer review in the development of scientific knowledge and analyse the relationship between science, echnologies and engineering. They analyse the key factors that influence interactions between science and society. Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision. They select and construct effective representations to organise, process and summarise data and information. They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies. They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. They construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences.



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## VERSION 9

### *Year 7-8 Achievement Standard*

By the end of Year 8 students explain how people design, innovate and produce products, services and environments for preferred futures. For each of the four prescribed technologies contexts they explain how the features of technologies impact on design decisions, and create designed solutions based on analysis of needs or opportunities. Students create and adapt design ideas, processes and solutions, and justify their decisions against developed design criteria that include sustainability. They communicate design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. They independently and collaboratively document and manage production processes to safely produce designed solutions.

## VERSION 9

### *Year 9-10 Achievement Standard*

By the end of Year 10 students explain how people consider factors that impact on design decisions and the technologies used to design and produce products, services and environments for sustainable living. They explain the contribution of innovation, enterprise skills and emerging technologies to global preferred futures. For one or more of the technologies contexts, students explain the features of technologies and their appropriateness for purpose, and create designed solutions based on an analysis of needs or opportunities. Students create, adapt and refine design ideas, processes and solutions and justify their decisions against developed design criteria that include sustainability. design ideas, processes and solutions and justify their decisions against developed design criteria that include sustainability. They communicate design ideas, processes and solutions to a range of audiences, including using digital tools. Students independently and collaboratively develop and apply production and project management plans, adjusting processes when necessary. They select and use technologies skillfully and safely to produce designed solutions.



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# Ekka

## EDUCATION

### INTERNATIONAL AWARD WINNERS

The Royal Queensland Show (Ekka) won 22 awards in the 2023 International Fairs & Expos (IAFE) Awards.

IAFE has more than 1,000 members representing agricultural fairs from the United States, Canada, the United Kingdom, and Australia.

These awards represent the continued dedication the Ekka plays in bridging the country city divide, and educating the next generation on the essential role farming and agriculture plays in their everyday lives.

