

INSIDE CLASSROOMS

Curiosity, Discovery, and Learning through Experience

ISSUE OCTOBER 2026

A HEARTBEAT
UNDER GLASS

KITCHEN
DETECTIVES

WATER THAT
CLIMBS

12 PRACTICALS · GRADES 1-12

Science, Lived

Al-Amjad Magazine



Science Lived, Not Just Read

From the Editor

This issue gathers the science practicals carried out across Perguruan Islam Al-Amjad, from Grade 1 to Grade 12. Every story here began as an activity report written by the teachers who led it, and has been reshaped so that it can be read easily, compared across levels, and shared with our community.

What stands out is continuity. In Grade 1, science arrives as a joyful, visual experience: balloons shaped into pufferfish. From Grades 2 to 6, students explore simple physics and biology first-hand — balance and structure, a developing chick embryo, forces and simple machines, food chains, and the breath we exhale.

In junior high, the work becomes more precise: the behaviour of water, the nutrients in our food, and the harmful additives that should never be in it. In senior high, practicals reach the microscopic level and move into applied biotechnology — from fungi and plant cells to the fermentation of a traditional dish.

Twelve grades. Twelve practicals. One continuous path through science.



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Little Pufferfish, Big Smiles

Grade 1 · Shaping Science with Balloons

A balloon, a spoonful of baking soda, and a splash of vinegar. For Grade 1 students at Al-Amjad, that was enough to begin.

Each child held their own materials. With a teacher guiding every step, they brought the vinegar and baking soda together and captured what came out in their balloons.

The mixture fizzed. The balloon began to grow.

Slowly, without anyone blowing into it, each balloon swelled — rounder and rounder, like a pufferfish puffing itself up. Then students shaped their balloons into little pufferfish of their own.

The steps were kept short and cheerful, so every student could follow with confidence — and watch closely where the bubbles came from and why the balloon grew.

The room was lively. Every child was proud to try, to explore, and to hold up something they had made themselves.

“At this age, science begins in the hands — long before it reaches the notebook.”

Why a pufferfish? It is a small animal with a remarkable defence. When threatened, a real pufferfish quickly fills its stretchy stomach with water — or with air, if it is out of the water — and swells into a round shape that is much harder for a predator to swallow.

The balloon did something similar, but the filling came from chemistry. Vinegar is an acid and baking soda is a base. When they meet, they react and release a gas: carbon dioxide.

That gas cannot be seen, yet it clearly takes up space. It has nowhere to go but into the balloon, so the balloon stretches. Squeeze it and it pushes back.

It is a real scientific observation, and the children made it themselves. Ideas like these return in later grades — in Grade 6, for instance, when students detect the very same gas, carbon dioxide, in the air they breathe out.

At this age, learning is done with the hands before it is written in notebooks. Mixing, watching, and shaping trains fine motor skills and careful observation — and builds the confidence children will need when science becomes more detailed in the grades ahead.

LAB NOTES

FORMAT

Hands-on practical, guided by teachers

KEY IDEA

A reaction that produces gas; gas takes up space; features of the pufferfish

MATERIALS

Balloons, small balloon pump, vinegar, baking soda

SKILLS

Fine motor control, observing change, making independently

Balancing a Balloon

Grade 2 · Building a Simple Hot-Air Balloon Model



A balloon wants to roll. It tips, it wobbles, it drifts. The challenge for Grade 2 was simple to say and harder to do: make it stand.

Using balloons and plastic cups, students built simple hot-air balloon models. They measured and cut the cups into small support legs, then attached them to the bottom of each balloon so that it could stand upright and steady.

Then came the test.

Would it stand? Would it lean? Students checked how sturdy their structures were and compared their results with those of their friends, noticing how the shape of the supports affected the balance of the balloon on the table.

Without a long lecture, the key ideas surfaced on their own: balance, carrying a load, and the way a simple structure holds itself up.

The hot-air balloon is a fitting model. Real hot-air balloons rise because the air inside the envelope is heated, making it less dense than the cooler air around it. But before any balloon can fly, it must be built to be stable, with its basket and frame carrying the weight evenly.

“A structure stands only when every part carries its share.”

In the classroom, the focus was on that second idea. A model resting on uneven legs shows straight away that weight must be spread across a base.

Cutting and assembling the cups also asked for creativity and precision. A careless cut shows up at once in the finished model, so students could see the link between careful work and a steady result.

The same ideas — balance, load, and support — appear everywhere in daily

life: in the legs of a table, the base of a lamp, or the pillars of a building. Once students notice them in a simple model, they begin to see them all around.

What students learned came from what they saw and tried with their own hands. They observed carefully, compared their builds, and drew simple conclusions from the evidence in front of them — the first habits of scientific thinking.

LAB NOTES

FORMAT

Individual and group model building

KEY IDEA

Balance, supporting a load, simple structures

MATERIALS

Balloons, plastic cups, scissors

OUTCOME

How the shape of a support affects stability

A Heartbeat Under Glass

Grade 3 · Observing a Developing Chick Embryo

Some of the most important things in life are too small to see. In Grade 3, students were given a way to look anyway.

The session began with an introduction to the embryo specimen and to the microscope itself – how to handle it safely, how to focus, how to look without rushing. Then, one by one, students took turns at the eyepiece.

What appeared was remarkable: the early structure of a chick embryo, with a tiny heart spot, thin blood vessels, and the beginnings of organs that cannot be seen clearly with the naked eye.

The children leaned in.

Through the lens, students met the beginning of life and the stages

through which living things grow and develop. Each of them recorded what they observed on a worksheet.

“Through the lens, students met the very beginning of life.”

The experience left a deep impression. It trained patience, focus, and care in handling laboratory tools. More than anything, it sparked a sense of wonder – the feeling that there is always more to the world than what the eye alone can see.

The chicken egg is one of the most familiar objects in any kitchen, which makes it a powerful teacher. The same kind of egg that becomes breakfast can, when fertilised and incubated, grow into a chick in about three weeks.

Seeing an early stage of that process helps students understand that growth does not begin with a visible animal. It begins with structures far smaller, developing step by step.

It was an early step into scientific observation. There will be many more.

LAB NOTES

FORMAT

Microscope observation, in turns

KEY IDEA

Growth and development; the early structures of life

MATERIALS

Microscope, chicken egg, cover glass, dropper, observation worksheet

OUTCOME

Living things develop from the embryo stage; the microscope as a tool for seeing



Less Force, Same Work

Grade 4 · Spring Scales, Inclined Planes, and Pulleys



How do people move heavy things without becoming stronger? Grade 4 set out to answer with numbers.

Working in groups, students first used a spring scale to measure the weight of an object — the pull needed to lift it directly. Then they changed the method. The same object was pulled up an inclined plane at different angles, and lifted with a pulley system.

Every change of method, a new reading.

At each step, students watched the spring scale and wrote down the result. The numbers changed with each method, and a pattern emerged: an inclined plane can reduce the force needed, while pulleys can reduce the force or change its direction.

These are simple machines, and they are everywhere — in ramps, in the rope of a flagpole, in the tools of builders. Measuring them in the lab

made the idea of mechanical advantage concrete.

Group work matters in a practical like this. Readings have to be taken carefully, written down, and checked before moving on — the same routine followed in any research laboratory.

“Science here was not a guess. It was a reading on a scale.”

Changing the angle of the inclined plane added another layer. Students could compare how the force needed changed as the ramp became steeper or gentler: a first encounter with the idea of a variable, something scientists change on purpose to see what happens.

That trade-off is at the heart of simple machines. They do not reduce the total work, but they make it easier to do, by spreading the effort over a longer distance or by changing its direction.

The spring scale also turned an invisible idea into something students could read. Force is no longer only a push or a pull. It has a size, and it can be measured.

The practical trained students to measure precisely, record data accurately, and analyse the relationship between force and the tools we use. Science here was not a guess. It was a reading on a scale.

LAB NOTES

FORMAT

Group measurement practical

KEY IDEA

Force, friction, pulling force, mechanical advantage

MATERIALS

Spring scale, weights, inclined board, fixed and movable pulleys, string, ruler or protractor

OUTCOME

How simple machines make work easier

Who Eats Whom?

Grade 5 · Building a Food Chain Diorama



G rass. Grasshopper. Frog. Snake. Eagle. Five names on a list mean little. Five figures standing in a model ecosystem mean much more.

In Grade 5, students built three-dimensional dioramas of a food chain in groups. Using cardboard bases, animal figures, and paper grass, they arranged each organism in order and traced the flow of energy from one to the next — from producer to primary, secondary, and top consumer.

The lesson was linked to the rich biodiversity of Indonesia's ecosystems, so that students could see these relationships are not abstract. They exist in the world around them.

What if one link disappears?

Once the dioramas were finished, students ran a simple population simulation. They removed one population of plants or animals from their model and followed what happened to the rest of the ecosystem.

Cause and effect became visible. One missing link changed the whole chain.

“One missing link changed the whole chain.”

Each figure in the diorama has a role. Grass is the producer, capturing energy from sunlight. The grasshopper, a primary consumer, feeds on the grass. The frog eats the grasshopper, the snake eats the frog, and the eagle, at the top of this chain, hunts the snake.

Energy moves up the chain, but not all of it: at every step, much of it is used or lost along the way. That is one reason why there are usually far more plants than grasshoppers, and far more grasshoppers than eagles.

Building the diorama in three dimensions also trained creativity and fine motor skills — cutting, arranging, and gluing each part in its place. Working in groups, students had to

agree on how their ecosystem should look and explain their choices.

Indonesia is home to an extraordinary variety of ecosystems, from rice fields to rainforests. Understanding a single food chain is a first step to appreciating how much depends on keeping them in balance.

By the end, students not only knew the order of a food chain. They understood why the balance of an ecosystem matters — and why it is worth protecting.

LAB NOTES

FORMAT

Group model making and simulation

KEY IDEA

Producers, consumers, and ecosystem balance

MATERIALS

Cardboard base, animal figures, paper grass, scissors, glue

TOPIC LINK

Interactions among living things in an ecosystem

The Breath That Clouds the Water

Grade 6 · Detecting CO₂ in Exhaled Air

We breathe out thousands of times a day without thinking about what leaves our bodies. Grade 6 set out to find out.

Two containers of clear limewater stood side by side. Into the first, students blew gently through a straw. The second was left open and untouched — the control.

After a few moments, the difference was impossible to miss. The limewater that had received their breath turned cloudy. The control stayed clear.

The evidence came first. The explanation followed.

The air we breathe out contains carbon dioxide (CO₂), and carbon dioxide reacts with limewater to make it cloudy.

The two-container design was the heart of the lesson. By comparing a treated sample with a control, students could see the change for themselves, without relying on a complicated theoretical explanation.

“Comparing with a control is how scientists separate cause from coincidence.

Limewater is a solution of calcium hydroxide in water. When carbon dioxide bubbles through it, the two react to form calcium carbonate — the same compound found in chalk and limestone. Calcium carbonate does not dissolve well in water, so it appears as tiny white

particles that turn the clear solution milky.

In other words, students did not only see that exhaled air is different. They produced a new substance, simply by breathing.

The lesson linked directly to the lungs. In the lungs, oxygen passes into the blood, while carbon dioxide — a waste product of the body’s cells — passes out and is breathed away. This is why the lungs belong to both the respiratory and the excretory system.

A simple cup of limewater made that exchange visible. It also showed a key principle of experimental design: without the control cup, students could not be sure the change was caused by their breath at all.

The practical sharpened careful observation and cause-and-effect thinking. It connected the lungs and the respiratory system to something students could see with their own eyes — a process happening inside their bodies every second.

LAB NOTES

FORMAT

Comparative group experiment

KEY IDEA

Gas exchange; identifying carbon dioxide

MATERIALS

Two cups or test tubes, clear limewater, straws, worksheet

OUTCOME

Breathing releases CO₂, shown by a simple chemical change



Water That Climbs

Grade 7 · Adhesion, Cohesion, and Capillarity



Water is supposed to fall. In Grade 7, students watched it rise.

Glasses of water tinted with food colouring were set out on the lab bench. Students dipped the ends of tissue paper and capillary tubes into them — and waited.

Slowly, colour began to creep upward, against gravity, through the tiny gaps in the material. Students observed how fast and how high the coloured water travelled.

Forces too small to see.

The explanation lies in two kinds of attraction. Water molecules pull on one another — cohesion. They are also pulled towards other surfaces, such as the fibres of the tissue — adhesion. Together, they produce capillarity: liquid moving through narrow spaces on its own.

Because students ran the observation themselves, the idea did not stay on

the page. Watching colour spread through paper, they realised that the movement of liquids around us is shaped by very specific attractions between molecules — invisible forces, strong enough to lift water.

“Invisible forces, strong enough to lift water.”

Colour made the invisible visible. Plain water rising through tissue is hard to follow; coloured water leaves a clear trail, so students could compare how far and how quickly it moved.

The same forces explain other everyday sights. Water forms rounded drops because of cohesion. It clings to the inside of a glass because of adhesion. And it spreads through a paper towel, a sponge, or a cotton cloth because of capillarity.

Plants rely on these forces too. Water travels from the roots to the leaves through very narrow tubes, and the

attraction between water molecules and the walls of those tubes helps it climb.

For Grade 7, this practical opened the topic of matter and its properties with a question worth asking: if water can climb, what else about ordinary substances have we never noticed?

The lesson closed by linking capillarity to everyday events, from a tissue soaking up a spill to the way water moves through plants.

LAB NOTES

FORMAT

Group practical

KEY IDEA

Adhesion, cohesion, and capillarity

OBSERVED

Speed and height of coloured water rising on tissue

MATERIALS

Plastic or glass beakers, water, food colouring, kitchen tissue, ruler

What's Really in Our Food?

Grade 8 · Testing for Starch, Protein, and Glucose

Tempeh, rice, potato, margarine, banana. Everyday food — but what is inside each one?

Grade 8 students answered the way a laboratory would. They began by preparing their own samples: grinding each food and mixing it with a little water on a spotting plate. Every step of the preparation was done by the students themselves.

Then came the reagents. Lugol's solution tests for starch. Biuret reagent tests for protein. Benedict's reagent, heated, tests for glucose.

The results arrived as colour.

Blue-black meant starch. Purple meant protein. A brick-red precipitate after heating meant glucose. Sample by sample, students identified and compared the main nutrients in the five foods.

The work demanded care: grinding samples properly, adding reagents drop by drop, and heating test tubes safely. Students recorded and analysed their data systematically.

“Knowing what food contains is the first step to choosing it wisely.

Each reagent works because it reacts with a specific kind of molecule. Lugol's iodine fits into the coiled structure of starch, producing the deep blue-black colour. Biuret reagent reacts with the bonds that link amino acids

in proteins, turning purple. Benedict's reagent, when heated, reacts with reducing sugars such as glucose, forming a precipitate that shifts from green towards brick red as the amount of sugar increases.

The choice of foods made the results meaningful. Rice and potato are staple sources of carbohydrate. Tempeh, made from fermented soybeans, is a well-known source of plant protein in Indonesia. Banana is naturally sweet. Margarine, a fat, offered a useful contrast.

A test that stays the same colour is also a result.

Heating test tubes over a spirit burner called for focus and safety: a clamp to hold the tube, its mouth pointed away from everyone, and gentle, even warming.

The lesson also connected back to the human digestive system and to balanced nutrition. Knowing what food contains is the first step to choosing it wisely.

LAB NOTES

FORMAT

Laboratory practical

TESTS

Sample preparation, starch (Lugol), Benedict, Biuret

MATERIALS

Spotting plate, test tubes and rack, tube clamp, spirit burner, dropper, mortar and pestle, three reagents

SAMPLES

Tempeh, rice, potato, margarine, banana



Kitchen Detectives

Grade 9 · Testing Food for Borax with Natural Indicators

Borax does not belong in food. Grade 9 learned how to check for it.

Meatballs (bakso) and noodles were the samples. Students ground them with a mortar and pestle, extracted the liquid, and tested it with two natural indicators made from ingredients found in any Indonesian kitchen: turmeric and purple cabbage.

Each indicator tells its own story. With turmeric extract, a sample containing borax shifts from yellow to a reddish-brown. With purple cabbage extract, whose colour comes from anthocyanins, a borax-positive sample turns from purple to bluish-green, because a borax solution is basic.

Two indicators, one question.

Using two indicators at once gave students a way to compare their observations — a valuable habit in any analysis. Every step, from preparation

to reaction, was carried out by the students themselves.

“Is this food safe to eat? Two indicators help answer the question.”

Along the way, they practised qualitative testing for synthetic additives and careful comparison of colour changes.

Borax (sodium tetraborate) is used in industry and in some cleaning products. It is not permitted as a food additive in Indonesia, because consuming it can harm health — which is exactly why simple screening tests matter.

The tests used in class are qualitative: they indicate whether borax may be present, not how much. Confirming and measuring it requires more advanced laboratory methods — an

honest limitation that students learned to recognise as well.

But the deeper lesson was about awareness. Knowing how to test food makes students more critical of what they eat, more concerned about food safety, and more alert to harmful chemicals around them.

LAB NOTES

FORMAT

Group practical

KEY IDEA

Harmful food additives; natural indicators (curcumin, anthocyanin)

STEPS

Sample preparation, turmeric indicator, purple cabbage indicator

MATERIALS

Spotting plate, mortar and pestle, dropper, turmeric and purple cabbage extracts, bakso and noodles, small beakers



The Hidden Architecture of Fungi

Grade 10 · Observing Macroscopic Fungi



Mushrooms are familiar at the market and on the dinner table. Under a magnifying glass, they become something else entirely.

Grade 10 students examined fresh samples of fungi commonly found in daily life, including oyster, wood ear, straw, and button mushrooms. No chemical treatment was needed; every feature could be observed in its natural state.

With tweezers, blades, and hand lenses, students identified the main parts of each fungus: the cap (pileus), the gills (lamellae), the stalk (stipe), and the hyphae — along with the mycelium, which looks like a web of fine threads.

Every sample, a different design.

Differences in shape, colour, and texture allowed students to compare the samples and group them according to the form of their fruiting bodies and their way of life, as part of understanding the classification of the Kingdom Fungi.

Students recorded their observations in notes and drawings — the traditional work of a biologist, where seeing carefully and sketching accurately go hand in hand.

Fungi are neither plants nor animals. They cannot make their own food through photosynthesis; instead, they absorb nutrients from their surroundings, often by breaking down dead material. In doing so, they play a vital role as decomposers, returning nutrients to the soil.

“Seeing carefully and sketching accurately go hand in hand.”

What we call a mushroom is only the fruiting body — the part that produces spores. The main body of the fungus is the mycelium, a network of hyphae that spreads through soil, wood, or other material, mostly out of sight.

The mushroom is only the part we see.

Looking at the gills beneath the cap helped students connect structure to function: the thin, closely packed

lamellae provide a large surface for producing and releasing spores.

Indonesian markets and kitchens are full of fungi — in soups and stir-fries, and in tempeh itself, which is made with the help of a mould. By starting with familiar examples, the practical showed that biodiversity is not only found in distant forests. It is also on our plates.

The practical built skill in morphological observation and laid a foundation for understanding biodiversity.

LAB NOTES

FORMAT

Observation practical

KEY IDEA

Fungal morphology, fruiting bodies, hyphae, mycelium, classification

MATERIALS

Hand lens, Petri dishes, tweezers, blade, ruler; fresh oyster, wood ear, straw and button mushrooms

OUTCOME

Distinguish fungal groups by the form of the fruiting body

A Window One Cell Thick

Grade 11 · Preparing and Observing Onion Cells

Every textbook shows a plant cell. In Grade 11, students prepared their own specimen to see one.

The technique is called a wet mount, and it requires a steady hand. Students peeled a very thin layer of epidermis from the inner skin of a shallot (*Allium cepa*) with tweezers, laid it on a glass slide, added a drop of iodine or methylene blue stain, and lowered a cover glass without trapping air bubbles.

A single bubble can hide what you are looking for.

Under the light microscope, at several magnifications, the structure appeared: the rigid, orderly cell walls; the cytoplasm; the cell membrane; and the nucleus, which takes up the stain.

What had been a diagram became evidence.

The onion is a classic choice for this practical, and for good reason. Its inner epidermis is naturally thin, so light passes through it easily under the microscope. It also has no green chloroplasts, which makes the other structures easier to see once they are stained.

“What had been a diagram became evidence.”

Staining is essential. Without it, most parts of the cell are almost transparent. Iodine or methylene blue is taken up differently by

different structures, so the nucleus stands out clearly against the rest of the cell.

Using several magnifications taught its own lesson. At low power, students could see many cells fitted together like tiles on a wall. At higher power, they could focus on a single cell and its parts.

Cell theory — the idea that all living things are made of cells — was built on exactly this kind of observation, beginning centuries ago with scientists peering through early microscopes. In Grade 11, students repeated that experience for themselves, with a slide prepared by their own hands.

The practical trained advanced laboratory technique — independent slide preparation and correct use of the microscope — and allowed students to confirm the theory of plant cell structure through their own empirical observation.

LAB NOTES

FORMAT

Group practical

KEY IDEA

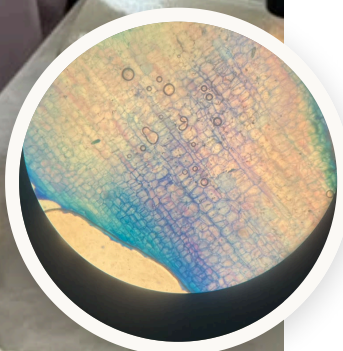
Plant cell structure and organelles

MATERIALS

Light microscope, slides, cover glass, blade, dropper, methylene blue, distilled water, fresh shallots

OUTCOME

Identify and analyse plant cell structures under the microscope



The Sweet Science of Tapai

Grade 12 · Cassava Fermentation and Cell Metabolism

Tapai singkong — sweet fermented cassava — is a familiar traditional food in Indonesia. For Grade 12, it became a working model of cell metabolism.

The practical began with cleaning and boiling cassava until cooked, then letting it cool completely. Only then was the ragi, a yeast starter, sprinkled over it.

The cassava was then sealed in a tightly closed container or wrapped in banana leaves, creating anaerobic conditions — without oxygen — for fermentation to take place.

Starch, then sugar, then alcohol.

As fermentation progressed, students observed the changes. The texture softened. A distinctive alcoholic aroma appeared. The taste turned sweet as starch was broken down into

glucose. And the temperature rose, a sign of heat released by the reactions.

“Complex biochemistry, served in a traditional dish.”

Each observation matched a step in the pathway students had studied: starch to glucose, and glucose to alcohol and carbon dioxide.

Tapai is one of many fermented foods in the Indonesian tradition, alongside tempeh and others. Long before microorganisms were understood, cooks learned through experience which conditions gave good results: cleanliness, the right temperature, and a tightly closed container.

The practical gave students the scientific reasons behind that traditional knowledge — and showed that a lesson on metabolism can also be a lesson on heritage.

For students approaching their final exams, the practical did double duty. It strengthened their mastery of anaerobic respiration — and showed that the complex biochemistry in their textbooks has a concrete application in traditional food technology.

LAB NOTES

FORMAT

Group practical

KEY IDEA

Anaerobic respiration (alcoholic fermentation), enzymatic breakdown of starch

MATERIALS

Cassava, ragi tape (*Saccharomyces cerevisiae*), airtight container or banana leaves, steamer, cooling tray

OUTCOME

Analyse factors that affect the work of microorganisms



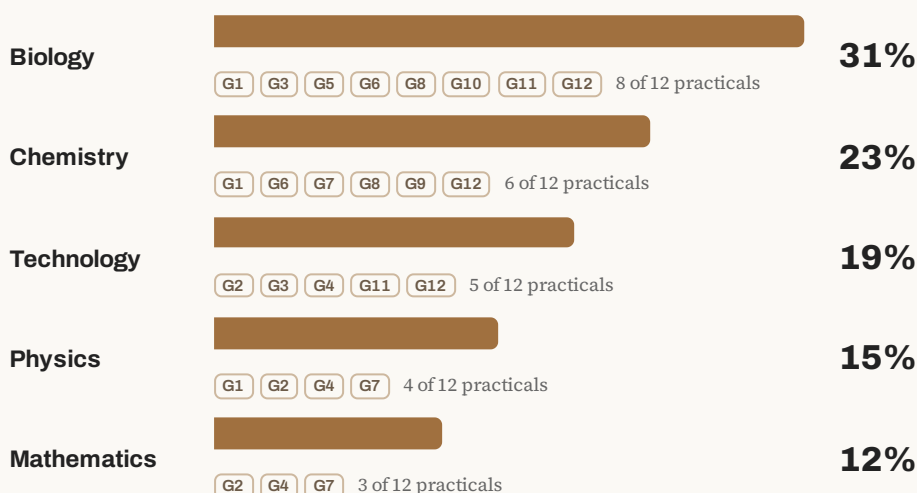
Reading the Twelve Together

One path, from balloons to biotechnology

Read together, the twelve practicals in this issue reveal a pattern that grows step by step from Grade 1 to Grade 12. The student's role shifts: from observing simple changes and building models, to running experiments with a control, to analysing scientific variables, and finally to handling biochemical reactions and qualitative analysis independently.

The materials tell a story too. Most came straight from daily life — balloons, limewater, turmeric, purple cabbage, tempeh, shallots, cassava, and yeast. These choices keep laboratory costs efficient, and they carry a quiet message: science is not locked inside the laboratory. It happens around us, every day.

THE STEM MIX OF THIS ISSUE



HOW TO READ THIS

Most practicals touch more than one field. Each of the 12 practicals was tagged with every STEM field it involves, giving 26 tags in total.

Percentages show each field's share of those tags. The chips show which grades fall under each field.

Technology covers building models and using scientific instruments; Mathematics covers measuring and recording quantitative data. The tagging is an editorial reading of the activity reports, not an official curriculum classification.

NOW IN THE LAB

13 + 5 Student Research Projects

Beyond the classroom practicals, the laboratory is busy with a more demanding kind of science. Thirteen senior high teams and five junior high teams are currently developing scientific papers (*Karya Tulis Ilmiah*, KTI), each starting from a real-life problem — turning waste into useful materials, cleaning water, and developing natural care products.

SENIOR HIGH · 13 PROJECTS

- 01 Coffee-grounds & coconut-fibre biosorbent
- 02 SALVORA — salak-peel biochar with zeolite
- 03 Rice-husk & fungal-mycelium paper
- 04 Kaolin-tannic acid wound dressing
- 05 Pineapple-fibre paper soap
- 06 The Green Bar — tea tree oil soap
- 07 PineDent — antibacterial test against *Streptococcus mutans*
- 08 LeafPack — mulberry-leaf cellulose
- 09 Topical gel for keratosis pilaris
- 10 RedNia Mist — underarm spray from *pucuk merah* leaves
- 11 RINDÉA — hydrogel cooling patch
- 12 bioChit-R — chitosan-based biomaterial
- 13 Acoryz — red rice & avocado body scrub

JUNIOR HIGH · 5 PROJECTS

- 01 ZALACCA-SORB — salak-seed biosorbent for used cooking oil
- 02 AVOBETLE — herbal cream from betel leaf & avocado
- 03 Papaya-seed & neem bio-coagulant for food-stall greywater
- 04 Water-hyacinth fibre as an alternative paper material
- 05 WALAMINT Care — herbal ointment from *waru landak* & mint

Titles are shown in short form. Findings will be shared in a future issue once the research is complete.

AL-AMJAD MAGAZINE

Perguruan Islam Al-Amjad · Medan

