



Solids, Liquids and Gases! Year 3 Science at Home

You can help! Your kitchen is a science lab! Ice, water, butter and chocolate are all around you — and your child is learning exactly why they behave the way they do.

Why are we learning this? States of matter in everyday life up here

Solids and liquids are part of daily life in the north. Ice keeps food fresh in the heat. Water is precious — understanding evaporation helps families know why tanks lose water in the dry season, and why wet clothes dry so quickly here. When cooking damper or camp bread, you work with solids that change when heat is added. Traditional practices often involve changing states of matter — extracting oils from seeds, melting beeswax for art, hardening materials over fire. Your kitchen and camp are full of the science your child is learning.

My child will learn to:

✓ Describe solids and liquids

Describe what solids and liquids look and feel like — and sort everyday objects into the correct category.

✓ Use science words

Use words like melting, freezing and evaporating correctly to explain what they observe.

✓ Explain state changes

Describe what happens when heat is added to a solid (melting) or removed from a liquid (freezing).

✓ Make and test predictions

Guess what will happen when a solid is heated or a liquid is cooled — then test the prediction.

Big ideas to know:

Solid vs liquid

A solid has a fixed shape — it stays the same and you can hold it in your hand. A liquid takes the shape of whatever container it is in — it flows and pours. Both are states of matter. Most things can be either solid or liquid depending on temperature — water is liquid at room temperature but solid (ice) when frozen.

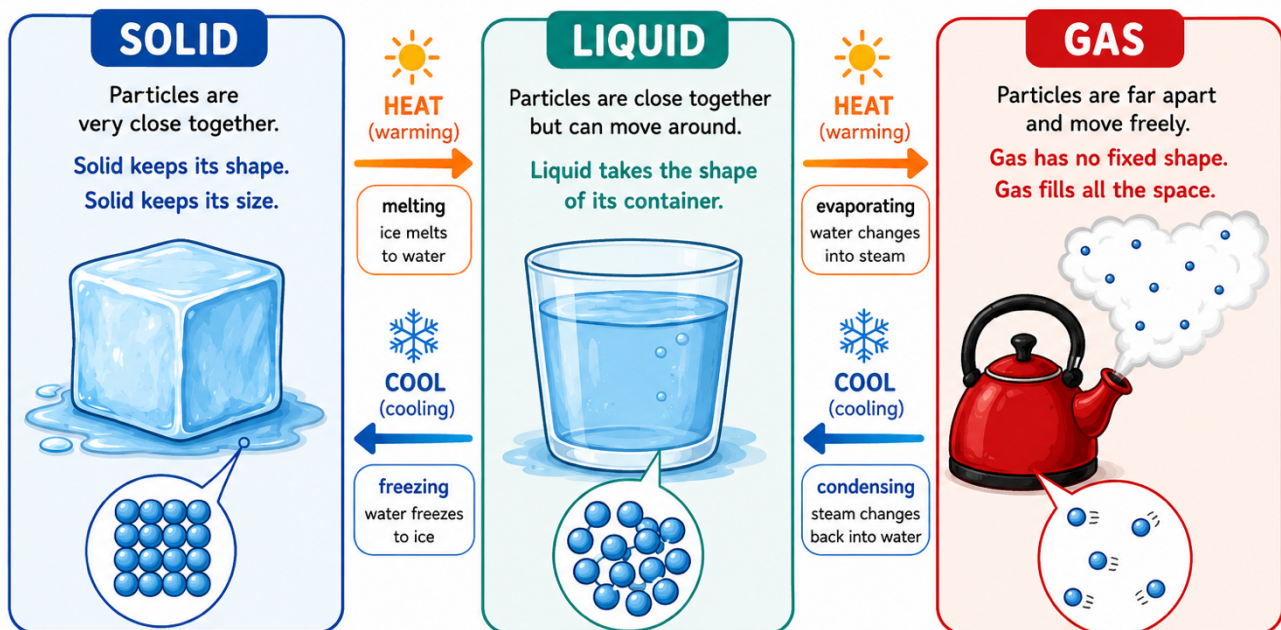
Melting and freezing

When you add heat to a solid, the particles inside move faster until the solid melts into a liquid. This is melting. When you remove heat from a liquid, the particles slow down until it freezes into a solid. This is freezing. These changes are reversible — you can melt ice into water and freeze it back again!

Evaporation

When a liquid is heated strongly, it can turn into a gas (water vapour). This is evaporation. It is why puddles disappear on hot days — the water evaporates into the air. In the Top End heat, evaporation happens very fast. The water does not disappear — it becomes invisible gas in the air, and eventually condenses into clouds.

How heat changes things – Solids, Liquids and Gases



What happens?

When we add heat, particles move faster and spread out.
When we remove heat, particles slow down and come closer together.



Examples in everyday life

Ice (solid) → Water (liquid) → Steam (gas)



Solids, Liquids and Heat! Year 3 Science at Home

Solids and liquids — key differences

Property	Solid	Liquid
Shape	Has a fixed shape — stays the same no matter what container it is in	Takes the shape of its container — spreads out to fill it
How it behaves	Does not flow or pour — you can pick it up and hold it	Flows and pours easily — runs downhill
Examples	Ice, rock, wood, butter from the fridge, spoon, brick	Water, juice, milk, melted butter, honey, cooking oil
With heat added	Can MELT into a liquid (e.g. ice → water, butter → liquid butter)	Can EVAPORATE into gas; remove heat and it FREEZES into a solid

Think Like a Scientist — Ice Investigator

Scientists ask questions, predict and then test. Take an ice cube and leave it on a plate. Ask your child: "What do you think will happen? How long will it take? Will it go faster in the sun?"

Ask: "What can you see happening? Is the ice getting smaller? Why? Where is the water going?" Encourage your child to describe what they see using science words: melting, liquid, solid, evaporating.

You will need: (Materials)

- Ice cubes (2 or more)
- Two plates or saucers
- Clock or phone timer
- Paper and pencil for recording
- Butter or chocolate (optional — to compare)

Steps for the ice investigation:

1. PREDICT: "What do you think will happen to the ice cube?"
2. OBSERVE: Watch the ice together — describe what you see
3. MEASURE: Use a timer — how long does it take to fully melt?
4. COMPARE: Try one in shade, one in sun — which melts faster? Why?
5. EXPLAIN: "What happened and why?" — use the science words!

Questions to ask your child

1. Is this a solid or a liquid? How do you know?
2. What would happen to butter if we left it in the sun?
3. How does water turn into ice? What needs to happen?
4. Why do puddles disappear after rain on a hot day?

5. Can you think of something that can be both a solid AND a liquid depending on temperature?
6. What science word describes ice turning into water? Water turning into gas?
7. What is the difference between melting and evaporating?

The best home experiment is the simplest: freeze water into ice, leave it out and watch it melt. Try it in different spots — verandah, in shade, in sun. The differences help your child discover what heat does, using their own observations — exactly how scientists work!

Key words to know:

Solid	A state of matter with a fixed shape that does not flow — e.g. ice, wood, rock
Liquid	A state of matter that flows and takes the shape of its container — e.g. water, milk
Gas	A state of matter that spreads out to fill any space — e.g. steam, air (water vapour)
Melting	A solid turning into a liquid when heat is added — e.g. ice melting into water
Freezing	A liquid turning into a solid when heat is removed — e.g. water freezing into ice
Evaporating	A liquid turning into a gas when a lot of heat is added — e.g. puddles drying in the sun
Properties	Things you can observe about a material — colour, shape, texture and whether it flows

Key words to look up

Solid · Liquid · Gas · Melting · Freezing · Evaporating · Properties

What school will check

By the end of Year 3, your child needs to sort solids and liquids by their properties and explain what happens when heat is added or removed — describing melting, freezing and evaporation.

Try it at home!

Freeze water into ice cubes. Time how fast one melts in the shade vs one in the sun. Write down your results. Repeat on a different day — do you get the same results? This is exactly how scientists check their findings!