



Everything — rock, water, air, and **you** — is made of **particles**: tiny pieces far too small to see. A big rock doesn't have bigger particles than a pebble... it just has **more** of them.

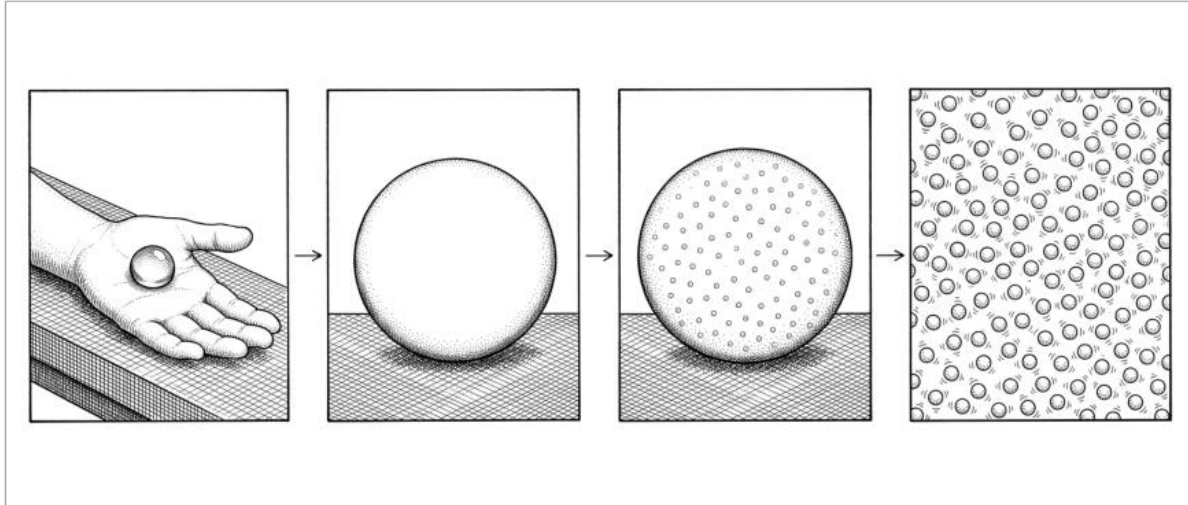
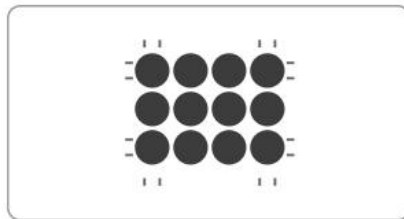


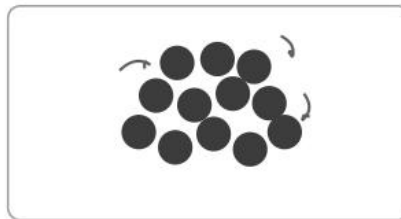
Fig. 1 — cut it in half, and in half again, a million times: at the very bottom you would hold one particle — far too small to see. Even the smallest speck you CAN see is still millions of particles.

SAME PARTICLES — DIFFERENT GRIP



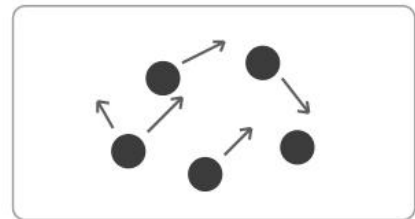
SOLID

holding tight — jiggling in place



LIQUID

loose grip — slipping and sliding



GAS

let go — flying free

Same dots in every box — the particles never change. Only the grip changes... and a hotter flame means faster jiggling.

WORDS TO KNOW

particle

attract

jiggle

tiny

melt

freeze

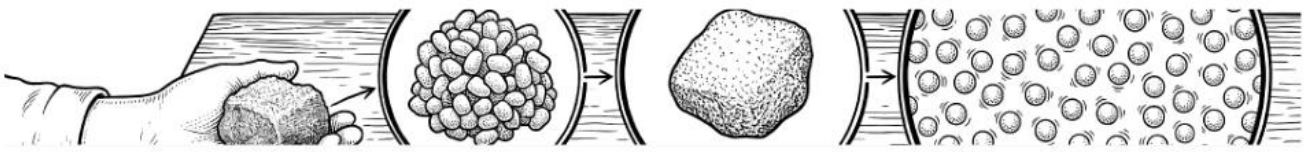
reversible

dissolve

particle — a tiny piece far too small to see · **attract** — pulling toward each other · **jiggle** — particles never stop wiggling · **tiny** — very, very small · **melt** — the jiggling wins and the particles slip loose · **freeze** — the jiggling slows and the particles lock tight · **reversible** — it can go back the way it was · **dissolve** — particles spread out and hide in the water

WATCH FOR THIS IN EVERYDAY LIFE

- Sugar stirred into warm tea vanishes. *Where did its particles go?*
- Sawdust, crumbs, or crayon shavings where something was cut. *What are those little bits?*
- Steam rising off your soup. *What is escaping into the air?*
- An ice cube melting in your drink. *Who is winning — the jiggle or the grip?*



particle

particle

attract

attract

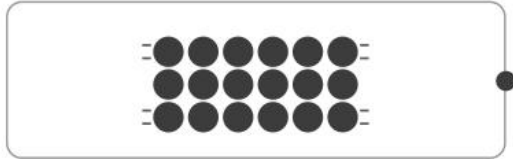
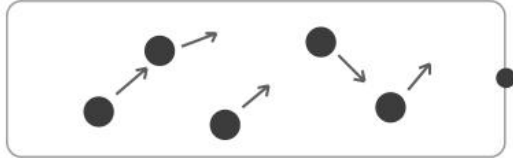
tiny

tiny



1 • MATCH THE PARTICLES

The dots are the particles — the same dots in every box. Draw a line from each particle picture to the state it makes.

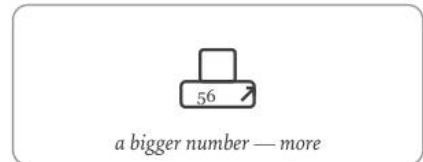
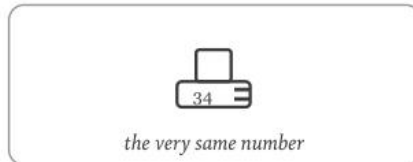
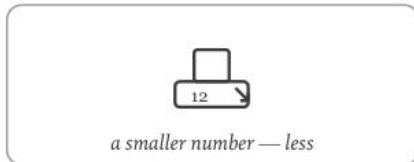


2 • MY HYPOTHESES

Before each experiment: circle your guess with a pencil. After: put a big ✓ on what really happened.

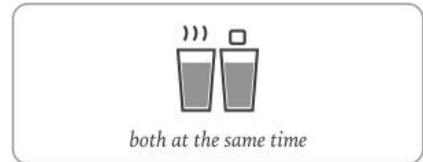
Weigh, Melt, Reweigh • CARD 1

The sealed jar of ice sits in the sun all day and melts. What will the scale say then?



Hot vs. Cold Jiggle Race • CARD 7

One drop of color falls into a HOT glass and a COLD glass at the same moment. Which glass mixes to full color first?



Reversible or Not • CARD 8

Melted butter goes into the fridge. A burned match cools all the way down. Which one comes BACK the way it was?



Match the Thing to Its Tiny Bits

Every big thing breaks into little pieces of itself



1 • DRAW A LINE FROM EACH THING TO ITS BROKEN BITS



a wood board



a stick of chalk



a hard rock



a loaf of bread



a crayon



a sugar cube



crumbs



a little hill of sand



sawdust



sugar grains



fine chalk dust



crayon shavings

Even these tiny bits are NOT single particles — every speck you can see is still **millions** of particles, far too small to see.

2 • THINK LIKE A SCIENTIST

Pick one speck — a crumb, a grain, a bit of dust. If you could keep cutting it in half, and in half again, a million times... **what would you finally hold?** Tell someone.



1 • WEIGH, MELT, REWEIGH

Read the scale and write the grams. A grown-up can write it first for you to copy.

WHEN	GRAMS (G)
 morning — frozen jar	
 my guess for later	
 afternoon — melted jar	
= afternoon — morning =	

2 • HOT VS. COLD JIGGLE RACE

Watch the clock — how many seconds until the whole glass is one even color?

GLASS	SECONDS
 HOT glass	
 COLD glass (write "still going!" if it never finished)	

3 • THINK LIKE A SCIENTIST

The melt numbers matched — **zero difference is a real result!** Tell someone why the jar weighed the same: what did melting change, and what did it never change?

Tiny Jiggling Particles

the lesson's song — sing it, then say what it means



SONG

VERSE 1

Take a drop of water, cut it right in two,
Cut it again and again — what's left when you're
through?

A particle! A particle! Too tiny to see —
And everything is made of them, even you and
me!

CHORUS

Hold on tight — that's a SOLID! (hug!)
Hold hands loose — that's a LIQUID! (slide!)
Let go now — that's a GAS! (fly free!)
Same little particles, one-two-three!
It's all in the grip, it's all in the grip —
Hold tight, hold loose, or let go and zip!

VERSE 2

Particles are jigglers, they never sit still,
Warm them up, they wiggle fast — cold makes
them chill.

Attract means holding on, like a hug that won't
quit —
The jiggle and the grip play tug-of-war, that's it!

(CHORUS)**VERSE 3**

Freeze a cup of water and it locks up tight,
Melt it in the morning and it pours out right —
Reversible! Reversible! It goes back fine.
But burn a stick of wood and there's no rewind!

**(CHORUS ×2, SECOND TIME STOMP ON "ONE-
TWO-THREE!")**

Tag (spoken, kids, doing the motions): "Solid...
liquid... gas... JIGGLE!"

How to use it. Play the recording once while everyone just listens. Play it again and join in on the chorus only — that is the part carrying the lesson. By the third time most children have the chorus. Then close the binder and ask what the words actually mean; a child who can sing it and explain it has the idea for good.