Think Energy.ie
HOME ENERGY SAVING KIT

MANUAL

Codema
Dublin's Energy Agency

Contents

What's in the Home Energy Saving Kit?

The Home Energy Saving Kit contains five tools to help you track your energy use, along with an additional exercise to measure your water flow rate. You can choose to use them all, or focus on one or two, then fill in the workbook provided, or work through your own checklist.

However you decide to use the kit, we hope it helps you understand how your home uses energy for heating, hot water and appliances.
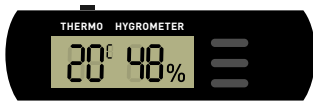
Fridge Freezer Thermometer
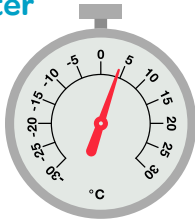
Thermal Leak Detector
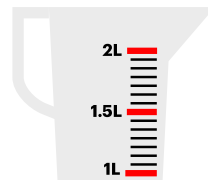
Temperature & Humidity Meter

Plug-In Energy Monitor

Radiator Key

Water Flow Rates*

*You'll need your own measuring jug, bucket and timer to measure your water flow rate

Why Save Energy?

Lower your bills

Think you can't save money without getting the builders in? Think again. By making simple changes to your daily routine and investing in energy-efficient appliances, you could reduce your energy usage by up to 20%. If you are in a position to invest in energy upgrades like insulation and new windows, your bills could be even lower.

A healthier, cosier home

Making simple changes to stop energy escaping from your home can have a number of health benefits. By adjusting your heating controls, sealing up draughts and managing your ventilation, you can enjoy a warmer, more comfortable home, improve indoor air quality and reduce the risk of damp and mould. Other energy upgrades can even help to reduce noise pollution and make your home a more peaceful and relaxing place to be.

Fight climate change

It's easy to feel as though our own day-to-day efforts won't have much of an impact in terms of combating climate change. But in truth, collective action has the potential to bring about big changes. For example, if every household reduced its emissions by 10%, that would be the equivalent of taking 385,000 cars off the road*.

Whether you own, rent or share your home — every change will make a difference.

Source: Codema calculations based on SEAI data, 2021.

1. Fridge Freezer Thermometer

The easiest way to check if your fridge freezer is working well is to check the temperature isn't too hot or cold. From an energy point of view, the ideal temperature in your fridge is between 3°C and 5°C, and between -15°C and -18°C in the freezer.

Ideal fridge temperature: 3°C to 5°C

Ideal freezer temperature: -15°C and -18°C

°C
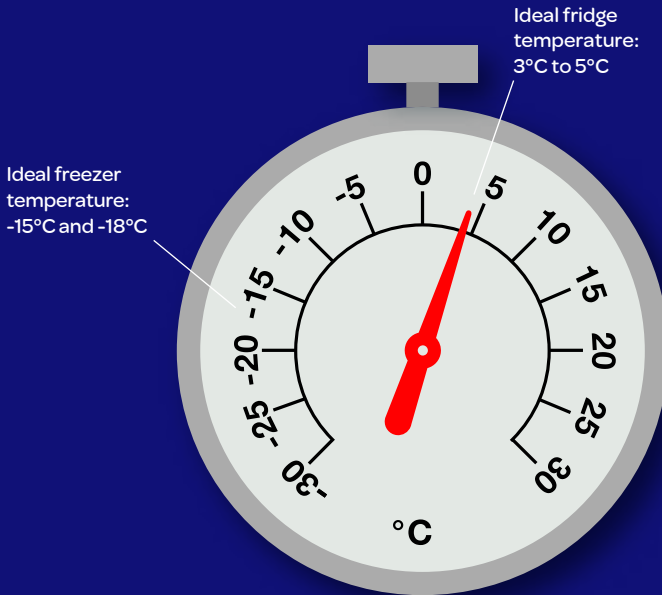
How to check your fridge's temperature

Depending on their size, age and energy rating, fridge freezers can use a significant amount of the electricity in your home. By checking they're at the right temperature, you can make sure they're not using more energy than they need to.
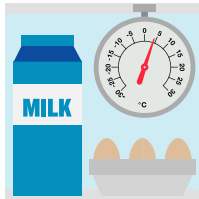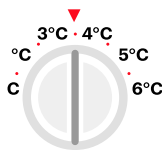
1 **Put the thermometer on the middle shelf of your fridge,** where you'll get the most accurate results. Make sure it's not touching anything but the shelf, and that no warm food has been put in the fridge.

2 **Wait half an hour (30 minutes)** with the fridge door closed before checking the thermometer.

3 **Check that the fridge is between 3 to 5°C.** You may need to change the temperature of your fridge to a different setting and then repeat Steps 1—2.

How to check your freezer's temperature

Your freezer's ideal tempereature is between -15 to -18°C. If it's colder than -18°C, it may be using more energy than it needs to, and if it's not cool enough, your food may not be properly frozen.
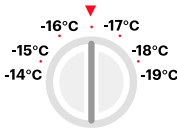
4 **Place the thermometer onto the middle shelf of the freezer.** Avoid placing it too close to other items.

5 **Wait half an hour (30 minutes)** with the freezer door closed before checking the thermometer.

6 **Check that the freezer is between -15°C and -18°C.** You may need to change the temperature of your freezer to a different setting and then repeat Steps 4 and 5.

Temperature & Humidity Meter

Use the temperature and humidity meter in different parts of each room, at different times, to check if they're too hot or cold, or too dry or damp. Then you can decide if you need to adjust your heating or ventilation — or both.

Ventilation is essential for fresh air and a healthy home

Temperature

THERMO   HYGROMETER

20℃   48%
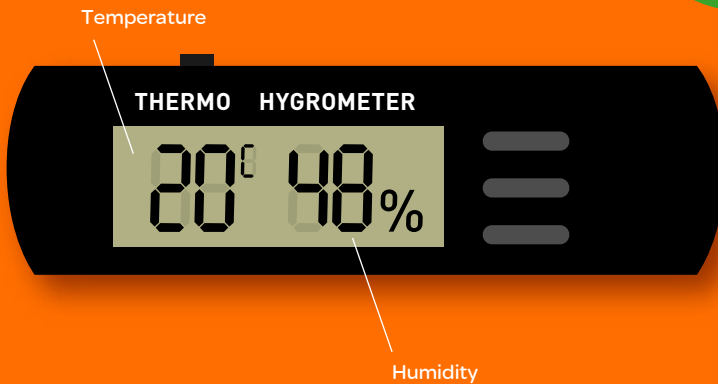
Humidity

How to check the temperature and humidity of each room

How comfortable and healthy your home is to live in depends a lot on how warm or cool and dry or damp it is. By checking each room's temperature and humidity (the amount of water vapour in the air), you'll know if you need to adjust your heating or ventilation — or both.
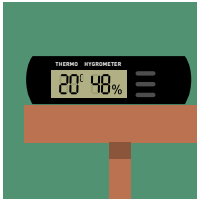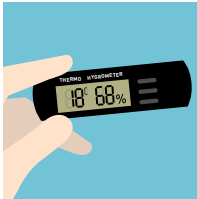
1 **Turn on the temperature and humidity meter and put it on a table or countertop** away from open windows, radiators or other sources of heat. The ideal temperature in rooms you spend time in during the day is 18°C — 20°C. In bedrooms and hallways aim for 15°C — 18°C.
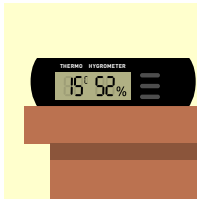
2 **Measure the humidity in each room**. Between 40% — 60% is ideal. If it's below 40%, it could feel dry and uncomfortable. If it's above 60% that could lead to damp, or even allow mould to grow. Bathrooms and kitchens may be more humid, and always need good ventilation.
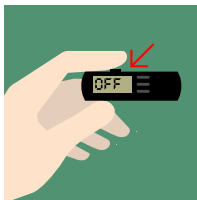
3 **Measure the temperature in each room** to make sure it's not too cold, which could feel uncomfortable — or too hot, which could be using too much energy. See if the damper rooms are also the coldest, or if it varies across all the different rooms.

4 Once you've taken measurements in all your rooms, **please remember to turn off the meter** before putting it back in the kit.

Radiator Key

Check your radiators regularly to see if heat is circulating all the way to the top. If they're cold at the top, but hot at the bottom, there's probably air trapped in the radiator. You can release this air using the radiator key, which will help your heating system to run more efficiently.

**If air builds up regularly, ask a plumber to check for leaks**

Warning
Choking hazard. Keep out of reach of small children.

Release trapped air in your radiators

If you have the type of central heating that pumps hot water between the radiators, it's important to check for trapped air at least once a year. This means letting the air out using a special radiator key, sometimes called 'bleeding' the radiators.
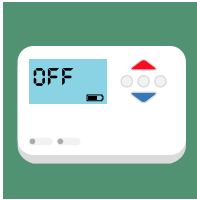
1 **Make sure your central heating system is fully turned off** at least one hour before you start. Your radiators should be completely cold, as the water needs to settle in the system.
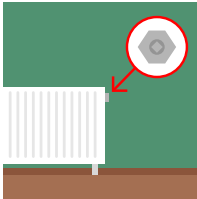
2 **Find the radiator bleed valve,** usually at the top of one end of the radiator. These are usually six sided, like a bolt.
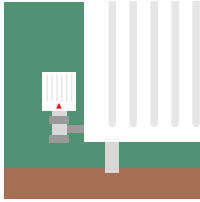
3 **Check the size and shape of the radiator bleed valve.** The radiator key in this kit is a standard size, but might not fit some radiators. If your radiators have bleed valves with a straight groove in the centre, you might be able to open them with a flathead screwdriver.
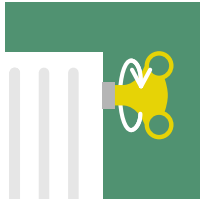
4 **Have an old towel or bucket ready** to catch any water that may come out as the air is released.
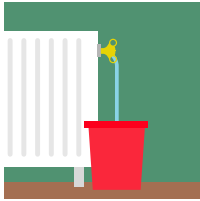
5 Make sure that the intake valve (or thermostatic radiator valve) is open to let the radiator fill back up with water. This valve is usually at the bottom corner of each radiator, and may be numbered from zero to five.
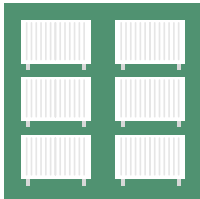
6 Use the radiator key to turn the radiator bleed valve anti-clockwise. You should hear a hissing sound as air escapes from your radiator.

7 Once the hissing stops, and there's a steady stream of water, this means all the trapped air has been released. Turn the radiator key clockwise to close the valve. Make sure it's tightly closed, with no drips.

8 Do the same thing with all the radiators in your home. Make sure each valve has been fully tightened after all the air has been released. Make sure the area around each radiator has been fully dried as well.

9 Remember to dry the radiator key before putting it back in the kit.

Thermal Leak Detector

The thermal leak detector is a digital thermometer that shines a light on the surface it's measuring. As you move the light around, it will change colour to show colder and hotter surfaces.

It's a great way to find draughts you can seal, or any heat that's escaping that could be insulated.

If you find a cold spot see if you can seal or insulate it
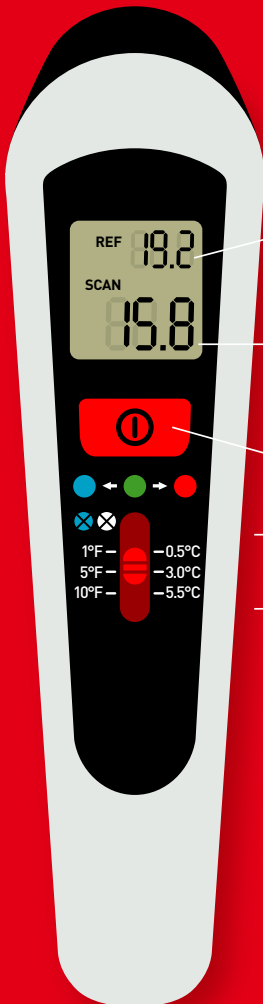
Reference Temperature
The temperature of the first surface the detector is pointed at

Scan Temperature
The temperature of the surface it's pointed at now

On / Off

Threshold Setting
Slide up or down to find small (0.5°C) medium (3°C) and large (5.5°C) temperature changes

Find draughts and heat leaks

Even if your home is well heated, there might be leaks letting heat escape and letting cold air in. As a general rule, if there's a difference of five degrees between the room you're in and a draught or cold surface nearby, you'll still feel chilly even when the room isn't cold. Finding and sealing these leaks can be a very cost effective way of boosting the comfort and efficiency of your heating.
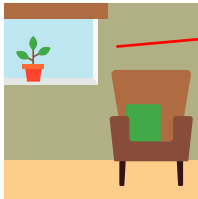
1 — **Choose an area to measure.** For example you could check around a windowframe and the windowsill.
Then choose a spot nearby as a reference. In this example you could choose the wall beside the window.
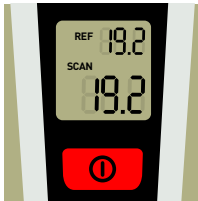
2 — Turn on the detector and point it at the spot you've chosen. **You'll see a temperature appear on the top right of the screen, beside the letters 'REF'.** When you start moving the detector around, it will compare whatever it measures to this 'reference' temperature.
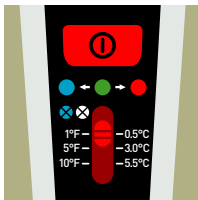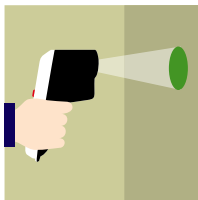
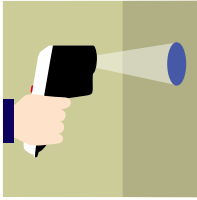**3** — Once you see a green light on the surface, you're ready to start checking for temperature differences.
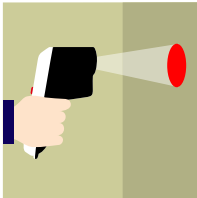**Slide the threshold setting to 0.5°C** to find small changes in temperature.

4 — On this setting, the light will stay **green if the difference in temperature is less than 0.5°C .**
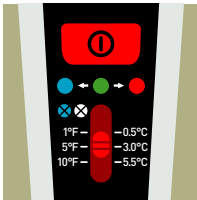
5

But if the surface temperature is **more than 0.5°C colder than the reference temperature,** the light will turn blue.
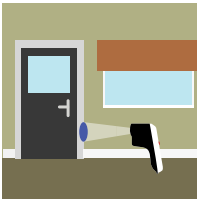
6

Similarly, if the surface temperature is **more than 0.5°C hotter than the reference temperature,** the light will turn red.

7

If you find hot or cold spots, move the threshold slider to check for medium (3.0°C) and large (5.5°C degrees) temperature changes. For a room to feel cosy, there should be no more than a 5°C difference between the various surfaces.

8

Check for leaks along walls, windows and doors first as this is where you'll often find draughts. Along skirting boards and kitchen cabinets are good places to check as well.
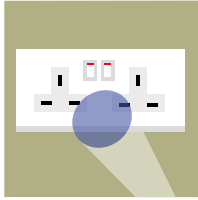
9
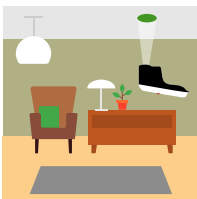
Check your ceilings as heat may be escaping into uninsulated attics or through draughty ceiling lights or attic doors. It's best to check as far away from radiators as possible.
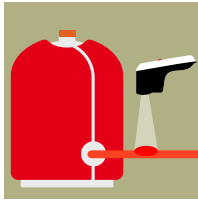Then check your floors and see if there's a difference between different floor coverings, floorboards and tiles.
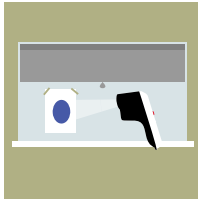
10 Check switches and sockets for draughts. If you find any, they should be easy enough to block with socket covers or stick-on draught sealing strips from hardware shops.

11 Check for hot spots **around your hot water tank or radiator pipes** that might be losing heat. If you find any, you can easily insulate them with ready-made foam pipe insulation from hardware shops.

12 The detector can't scan windows directly but if you attach a sheet of paper and wait 10 minutes, you'll get a fairly good estimate of the temperature of the glass.
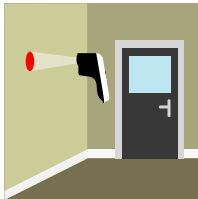
13 Compare internal and external walls to see if there's much of a difference. It can be useful to check if the south facing walls are warmer than the north facing ones.
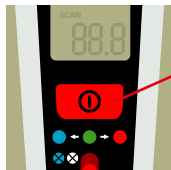
14 Please remember to turn off the thermal leak detector before putting it back in the kit.

For a cosy home, temperature differences should be no more than 5°C

Plug-In Energy Monitor

This monitor tracks how much energy is used by electrical appliances in your home. It will help you see which ones are using the most energy so you can think about using them differently or less often. That way you can cut down on your energy and make savings on your bills.

Remember to test appliances when they're on 'standby' too

Time
How long the monitor has been running

Usage
How much energy is being used

Reset
Sets the monitor back to zero to test a new appliance

Function
Press this until **kWh** appears on the screen

0:00

0.000
kWh

0   Day

FUNC.   COST   UP   DOWN
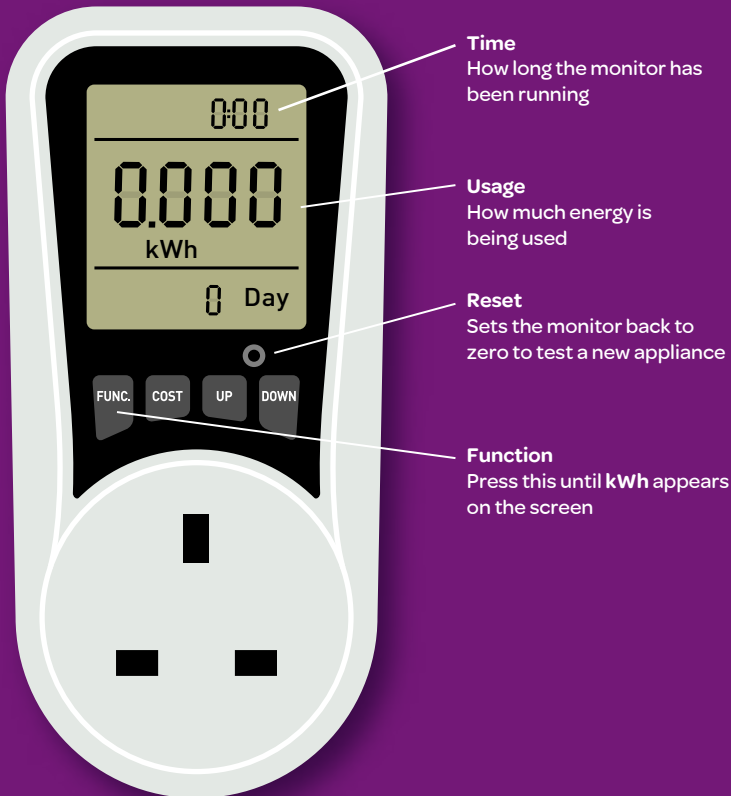
See how much energy your electrical appliances are using
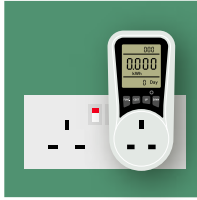
1 Plug the energy monitor into a power socket** and turn the socket on at the switch, if there is one.

2 Gently press the reset button with the end of a ballpoint pen or pencil. Avoid using anything sharp, or pushing the button too forcefully.** This clears the previous measurements so you're starting to measure each appliance from zero.

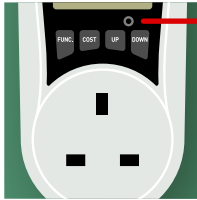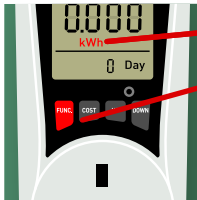**3** Press the FUNCTION button until you see kWh in the centre panel.** A kilowatt hour (kWh) is the unit used to measure the amount of electricity used by any electrical appliance — the same as the units you'll see on your electricity bill.
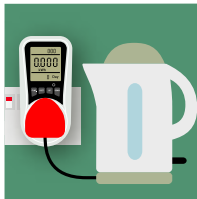
4 Pick an appliance to measure. It could be a kettle, hair dryer, microwave, blender — anything with a plug. **Plug it into the socket of the energy monitor.**
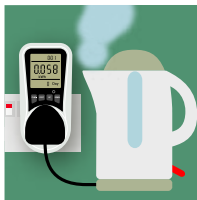
5 **Turn on the appliance — in this example a kettle.** Watch as the kWh counter changes to show how much electricity is being used as the kettle boils.

6

€0.36
per kWh

Check how much you're paying for a unit of electricity. You can find this on your electricity bill under 'Unit Rate'. It will be written as a price per kWh, for example €0.36 per kWh. This means you will be charged 36 cent for each kWh of electricity you use.

7

Figure out how much the appliance costs to run. Multiply your 'Unit Rate' by how much electricity it took to boil a cup of water.

If your electricity costs
€0.36 per kWh

and boiling a cup of water took
0.06 kWh of electricity

Then boiling a cup of water costs
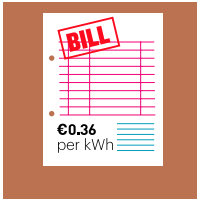**€0.36 x 0.06 = €0.02**

8

Think about how often you use that appliance. If you use something every day, see how much it costs in a week.

If boiling a cup of water costs
€0.02

and you have four cups a day
€0.02 x 4 = €0.08

Then every week it costs
€0.08 x 7 = €0.56

9

See what it adds up to in a year.

If boiling a cup of water costs
€0.56 each week

and there are 52 weeks in a year

Then every year it costs
€0.56 x 52 = €29.12

10

Check the other appliances you use most often, and remember to press the 'Reset' button between each one. Bear in mind that appliances that heat up — irons, sandwich toasters, electric blankets, hair straighteners — will generally use more electricity than those that don't.

11 Measure and compare all your appliances using the workbook in the kit. Once you can see which of your appliances are using the most energy, you can see where you can make some changes to how you use them, and how that can help reduce your bills.

Download your own workbook at ThinkEnergy.ie/resources/guides-and-workbooks

Plug-in Energy Monitor (Sample)

| APPLIANCE	ENERGY PER USE	ELECTRICITY UNIT RATE*	USES PER WEEK	COST PER WEEK		COST PER YEAR
Kettle (full)	0.157 kWh	x €0.36	x 14	= €0.79	x 52 =	€41.15
Coffee maker	0.185 kWh	x €0.36	x 10	= €0.67	x 52 =	€34.84
TV	0.044 kWh	x €0.36	x 16	= €0.25	x 52 =	€13.00
Vacuum cleaner	0.284 kWh	x €0.36	x 1	= €0.10	x 52 =	€5.20
Toaster	0.032 kWh	x €0.36	x 7	= €0.08	x 52 =	€4.16
Hair straightener	0.008 kWh	x €0.36	x 3	= €0.01	x 52 =	€0.52
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€
	kWh	x €	x	= €	x 52 =	€

* Calculated at sample August 2024 unit rate of €0.36 per kWh. Measurements shown are for demonstration purposes only and may vary from those for your own appliances.

Water flow rates

After heating your home, hot water uses the second largest amount of energy in your home. One way to manage your hot water costs is to see how quickly it flows from your taps or shower. If it's flowing too quickly, it will use more water than you need — as well as more energy and expense to keep it hot.
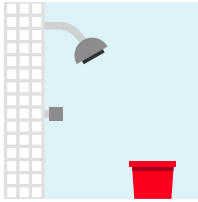
You don't need any special equipment to test your water flow, just a timer, bucket and a measuring jug.

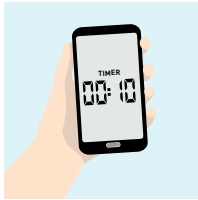**Some taps and showers can use up to 22 litres per minute!**

TIMER

00:10

2L

1.5L

1L
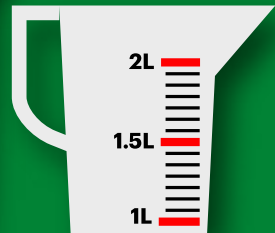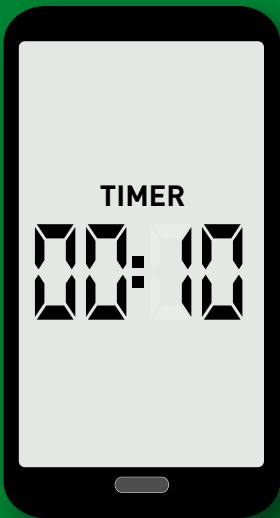
How to measure your water flow rate

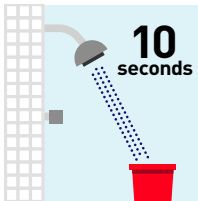**1**   **Put the bucket under the shower or tap** you'd like to measure.
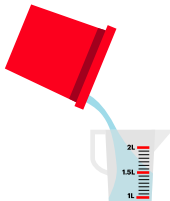
2   **Set a timer for 10 seconds** — you could use a kitchen timer, or there may be a timer or stopwatch on your mobile phone.
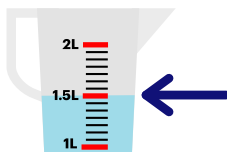
3   Turn the water on full flow and start the timer. **After ten seconds, turn the water off**.

4   Empty the bucket into a **measuring jug.**

5   Check **how much water** was used.

Water flow rates

6
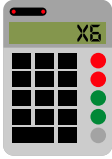
Multiply this amount by six to calculate the flow rate per minute.
Note: If 10 seconds was too quick for measuring, simply wait for 15 seconds and multiply the water amount by four instead.

7

9
LITRES

Check that your water flow rate is 9 litres per minute or less. This means your water is running efficiently.
If your water flow rate is higher, you could try fitting flow restrictors or aerators if your taps and showers are suitable.

8

Remember to make use of the water you collected . You could use it to water your plants for example.

Tell us how we're doing

Help us improve the kit by sharing your thoughts and feedback at

ThinkEnergy.ie/energy-saving-kit/
energy-kit-survey

Disclaimer

While Codema considers that the information given in this manual to be sound, all parties must rely upon their own skill and judgement when making use of it. Codema does not make any representation or warranty, expressed or implied, or assumes no responsibility as to the accuracy or completeness of the information contained in this manual. Codema will not assume any liability to anyone for any loss or damage arising out of the provision of this Home Energy Saving Kit or damages or issues caused by the use of these energy saving tools.

Before using any part of this Home Energy Saving Kit, please read the manufacturer's guidelines on each of the energy saving tools provided. Manufacturer's instructions are provided in the document wallet within the Home Energy Saving Kit.

Next Steps

Once you've used the Home Energy Saving Kit, there are lots of ways you can start saving energy — whether you own, rent or share your home.

Check out our guide to 100 Ways to Save Energy at Home
We've collected the best tips and tricks from energy experts to help you save energy in the way you run your home and manage your bills. Each Home Energy Saving Kit has a free copy for you to keep, or you can download it at:
ThinkEnergy.ie/resources

Switch and Save
Switching energy supplier each year can save you money on your energy bills. You can also choose to give your business to suppliers that are investing in renewable energy. Ireland's independent energy and water regulator, the Commission for Regulation of Utilities, has a handy guide to help you find the best supplier for you:
cru.ie/consumer-information/switch-supplier

SEAI Home Energy Grants
The Sustainable Energy Authority of Ireland (SEAI) offers a range of grants to help cover the costs of energy upgrades. These include attic, roof and wall insulation, heat pumps, heating controls, solar water heating and solar electricity. For more information call 01 808 2004 or visit:
seai.ie/grants/home-energy-grants

Sustainable Energy Communities
A Sustainable Energy Community (SEC) is a group of people who have come together to improve how energy is used in their community. Energy communities often look at projects in homes, transport and local businesses. Why not join your local SEC — or start your own? For more information visit:
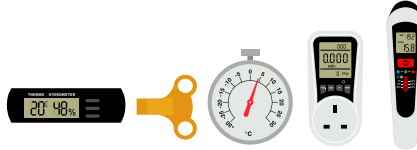*seai.ie/community-energy/sustainable-energy-communities*

For links to these and other useful resources visit ThinkEnergy.ie
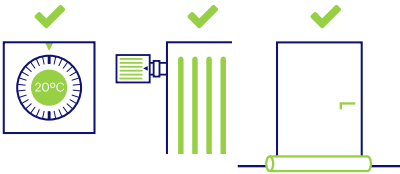
Your energy saving roadmap

Borrow the Home Energy Saving Kit

Use the tools to track your energy

Use whichever energy saving tips suit your home and budget

Follow us @energysavingkit for the latest energy updates

Look into Home Energy Grants at seai.ie/grants/home-energy-grants

Carry out your energy upgrades with an approved contractor

Enjoy a cosier home with lower energy bills

The Home Energy Saving Kit is available to borrow, free of charge, from selected libraries across Ireland.

Check where your energy is going
The kit contains five tools you can use to measure how your home uses energy and where energy might be escaping.

Find out what it's costing you
Once you've measured your energy use, use the workbook to calculate how much it's costing, and how much you might be able to save on bills.

See how you can make savings
Once you've discovered where your energy is going, check out our easy to follow guide to start making real savings whether you own or rent, live alone or share your home.

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