Introduction to -
- Star Rating
- Energy Saving

Lesson Aims:
1. Summarized Different Electrical Energy Saving Ratings
2. Identify Cost-Saving Appliances.
3. Justify Rating-Wise Power Consumption.

What is the star rating on electrical appliances?

Who gives a star rating to electrical appliances?

What is the meaning of a 5-star rating in electrical appliances?

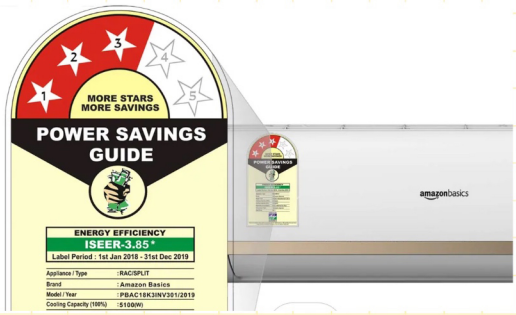
Star Appliances:

The star rating is about energy efficiency – that is how efficient a model is relative to other models of the same size.

More stars mean more efficiency – compared to other models of the same size.

Most products are given between 1 and 6 stars. However, technology keeps getting better... so does energy efficiency! This is why nowadays you'll see some super-efficient models in shops and online with an extra row for stars, as they can have up to 10.

Tip: Always choose which size (or capacity) model you need first, then use the star rating to compare them.



Energy Consumption Mean

Energy consumption is about how much electricity a model uses.

It is based on standardized testing – required by law and conducted in line with the official Standard.

You can use the energy consumption number to compare any model, regardless of size (capacities).

The lower the number, the less a model costs – and the less you pay on your electricity bill.

Tip: choosing an appliance with a lower energy consumption will save your electricity bill.

Why do products have to be the same size? Comparing the star rating on products of the same size or capacity means you can be confident you're comparing apples with apples – and making an informed choice. However, if you accidentally use the star rating to compare products that are not the same size, you could end up buying a product that will cost you more to run and be responsible for more emissions.

For example, if you're looking to buy an air conditioner, washing machine, dryer, or fridge, the physical size on the outside of many models looks very similar – however, the capacity could be very different. If you don't check the capacity and just look at the star rating on the Energy Rating Label – and pick the one with the most stars – you could end up paying hundreds more on electricity bills for years to come.

The Standardized Energy Rating Label:

Energy rating labels provide consumers with information on the energy efficiency of a product. There are two main types of labels – comparison labels and endorsement labels.

Comparison labels

allow consumers to compare the energy consumption of similar products and factor lifetime running costs into their purchasing decision. The Energy Rating Label and Zoned Energy Rating Label are mandatory comparison labels.

Endorsement labels,

such as the ENERGY STAR label, provide a 'seal of approval to inform prospective purchasers that the product is highly energy efficient for its class. The Bureau of Energy Efficiency regulates the ENERGY STAR label.

Energy Consumption Figure: The Energy Rating Label estimates how much energy (kilowatt-hours or kWh) the appliance will use over a year. This is based on assumptions about 'average usage' and allows consumers to estimate how much it will cost them to run that appliance.

Star Rating: The more stars on the Energy Rating Label, the more energy efficient the appliance is.
Efficient appliances use less electricity to achieve the same level of performance as similar models with the same size or capacity.
The more energy efficient a model, the less energy it will use and the less it will cost you to run.

Activity

How much energy do you use on average over one day?

What to do in the activity -

Write down the name of the appliance in column A.
Use the tables provided with the activity sheet to approximate the watts of the appliance (students should not poke around the back of appliances looking for labels). Write down the Watts for that appliance in column B
• Estimate how many hours are spent using each appliance and write it down in
column C. The fridge will be difficult as it regulates itself when it cuts in and
out. How might students work out how long the fridge operates?
In column D work out the units of electricity used. To do this: Multiply Watts by
hours used (column B x column C), Divide by 1000 and write the answer into
column E.
• In column F write the cost by multiplying the units used by the price per unit.
You can find the unit price on the electricity bill. It is usually represented as
rate c/kWh (cents per kilowatts).

	Appliance	Power (Watts)	Hours Used	Watts X Hours 1000	kWhs used	Costs (Units used x price)
Bedroom						
Living Room						
Kitchen						
Bathroom						
Laundry						

1. How much total energy did you use in one day?
2. How do you think the information that you have found out about your energy use will change your energy consumption behaviour in the future?
3. Are there any ways that you could use less?

Typical power ratings

Appliance	Typical Power Rating
Ceiling fan	65-75W
Computer (PC and monitor)	190 W
Cordless phone (average standby)	30 W
Dishwasher (2 star rating, 1hr/cycle, 12 Places) 1 star	1335 W
Dishwasher (2 star rating, 1hr/cycle, 12 Places) 2 star	950 W
Dishwasher (2 star rating, 1hr/cycle, 12 Places) 3 star	712 W
Electric air conditioning (evaporative)	400 W
Electric air conditioning (split cycle, 2 star rating)	1400 W
Electric air conditioning (wall unit, 2 star rating)	1410 W
Electric central heating	4000 W
Electric oven (fan assisted)	1500 W
Electric stove top cooking (large hotplate)	1100 W
Electric stove top cooking (small hotplate)	700 W
Electric strip heater (no thermostat)	1000 W
Energy efficient light globe	15 W
Fax machine	20 W
Fish tank	50-1210 W
Fluorescent light tube	13/20/40 W
Fridge (1 door) 350-400 L (2 star rating)	1060 W
Fridge (2 door) 350-420 L (3 star rating)	1671 W
Gas central heating	19440 MJ
Gas heater (large wall unit)	35 MJ

Appliance	Typical Power Rating
Gas oven	12 MJ
Gas stove top cooking (large stove size)	16 MJ
Gas stove top cooking (small stove size)	10 MJ
Kettle	2400 W
Microwave	1600 W
Photocopier (active)	75 W
Photocopier (standby)	180 W
Printer	10-40 W
Scanner	12 W
Small appliances (radio, portable fan)	12 W
Standard light globe	40/60/100 W
Television (LCD)	270 W
Television (Plasma)	311 W
Toaster	2400 W
DVD / VCR	25 W
Washing dishes - electric hot water system (10L/sink/wash)	330 W
Washing dishes - gas hot water system (10L/sink/wash)	1.89 MJ

1. What things can your family do to reduce energy consumption?
2. What things can you personally do to reduce your energy consumption?

Reflection

1) Why is a Star rating important for refrigerators?
2) Why is a Star rating important for air-conditioned?
3) How do you read an energy-efficient label?
4) Which provides for the display of energy performance of equipment and appliances?
5) What does the BEE star rating represent?
6) What is the BEE rating year in the refrigerator?

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