

Design and Technology

Preferred Resistor Values

The general purpose resistors used in schools are manufactured in a range of values from 4R7 to 1M. Not every value between the lowest and highest is manufactured as this would be too expensive and is also not required as these general purpose resistors have a tolerance of 5%. This means for example that a 100R resistor could be if measured between 95R and 105R. So there would be no need to manufacture values from 95R to 105R as a 100R resistor would be accurate enough.

The values that are manufactured are known as **Preferred values**. Below is listed the popular E12 range

E12 10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82 and their multiples.

This means that after 82R the next resistor is 100R, then 120R and so on. All you do is add an extra 0 after the number.

Exercise 1

What would be the next available resistor after the one given:

1. 150R _____
2. 2K2 _____
3. 82K _____
4. 120K _____
5. 47K _____
6. 330K _____
7. 820K _____
8. 1K _____
9. 12K _____
10. 68K _____

When performing a calculation to find the value of a required resistor, very often your answer will lie between two preferred values. When this happens you always choose the higher of the two resistors.

Exercise 2

Having calculated the value of a required resistor, choose the nearest preferred value.

1. 16R _____
2. 300R _____
3. 1050R _____
4. 72K _____
5. 200K _____
6. 620K _____
7. 9100R _____
8. 85R _____
9. 60R _____
10. 2k5 _____

DT Group

Name