Identifying Resistor Values Worksheet

Find some material (a website or video) online about how to identify resistor values and teach yourself the skill. The following info sheet is left incomplete, and your task is to complete it. Use the words listed in the box below to fill in the ???'s. For the colour table, use the image located here. As you complete the worksheet, make a point to remember the information. This content is fair game for the test.

Word List

4 or 5	**digit from 0 to 9**	**470kΩ and 3.3MΩ**
margin of error	**tolerance rating**	**number of zeros**
oriented	**right-hand side**	**Mega-ohms**
95Ω and 105Ω	**resistance**	**tolerance of 5%**
guaranteed	**corresponding digits**	**first two bands**
coloured bands	**right-hand side**	**five-band resistor**
indicates	**slightly larger gap**	**5%**
51 000Ω	**larger than 1000Ω**	**tolerance**

To identify the resistance of a resistor, we look carefully at the coloured bands that decorate it. For most resistors, there will be either ??? of these. In both cases, one of the bands indicates the ??? of the resistor. Because resistor manufacturing is not a completely exact procedure, the ??? of a resistor guarantees a ??? between the resistors rated resistance, and it's real-life resistance. A resistor with a 5% tolerance is ??? to have a real life resistance within 5% of its rated value.

For example, a resistor rated for 100Ω with a ???, may have a real-life resistance anywhere between ???.

To correctly identify the value of the resistor, the resistor must be ??? so that the tolerance band is on the ???. To identify which end-band is the tolerance band, it helps to remember that the tolerance band has a ??? between it and the other bands. Also, it typically is coloured either brown, red, silver, or gold.

(more...)

With the tolerance band on the ???, the rest of the coloured bands can be read to identify the resistance value. Each colour represents a ???. The colours and their ??? are listed here, for convenience.

Colour	Digit		Colour	Digit
???	0		**Green**	???
???	1		**Blue**	???
???	2		**Purple**	???
???	3		**Gray**	???
???	4		**White**	???

With a four-band resistor, we find the resistance by taking the digits represented by the ???, then appending some ??? indicated by the third band.

For example, a yellow, purple, orange, gold resistor indicates that the tolerance is ??? (gold), and that the ??? is 47 000Ω. (Yellow = 4, Purple = 7, Orange = 3 more zeros)

With a ???, the process is the same, but there are three bands that indicate digits, and the fourth ??? the number of extra zeros.

For example, a green, brown, black, red, brown resistor indicates that the tolerance is 1% (brown), and that the resistance is ???. (Green = 5, Brown = 1, Black = 0, Red = 2 more zeros)

Finally, it is common to refer to resistances ??? using units of kilo-ohms (kΩ), and it is common to refer to resistances larger than 1 000 000Ω using units of ??? (MΩ). For example two possible resistor values could be ???.