SCIENTISTS ARE....

...LIKE DETECTIVES...

THEY LOOK FOR CLUES AND USE THEM TO MAKE DECISIONS

Gather and Interpret Data

THINGS TO DO

#Make and record observations and measurements.
#Perform calculations
#Look for trends.
#Carry out experiments to test observations.

THINGS TO ASK

Is it something we can see, hear, smell, touch or taste? (qualitative)
Is it measurable? (quantitative)
What did you see (observation)? What might that mean(inference)?

SCIENTISTS DON'T....

...MAKE THINGS UP...

THEY ALWAYS BACK UP THEIR CLAIMS WITH FACTS...

Use Evidence

Things to do

#Support your explanations with examples from experiments or research

#Reference your work

#Use phrases like...

" according to"

"because"

"for example"

"the author states that"

"as shown by.."

Things to ask

How do you know that?

What makes you think so?

How could you check that?

So an example of this would be?

Can you think of an example when this wouldn't work?

SCIENTISTS DON'T....

...TRUST ANYTHING... WITHOUT CHECKING OUT THE FACTS...

Critique Evidence

THINGS TO DO

#Check trustworthiness of data

#Use the "CRAP" test to check written resources

#Ensure investigations are Fair Tests.

#Check for bias in experiments

THINGS TO ASK

How sure are you of your results?

How did you get the data?

How many times was the experiment repeated?

How were the measurements taken and recorded? Did you check for parallax and zero errors?

Did these results surprise you? What were you expecting to find?

Would these results always be true?

SCIENTISTS ARE....

...MULTILINGUAL ...

...THEY SPEAK "GRAPHING", "MODELLING", "TABLES", "SYMBOLS, "EQUATIONS" AND EVEN "ENGLISH" WHEN REQUIRED

Interpret Representations

THINGS TO DO

#Choose the correct way to present your data.
#Use diagrams and models to explain concepts or processes
#Use third person and formal language to write reports.

THINGS TO ASK

What is the best way of presenting this information?
Have I used appropriate language for Science?
Does my graph/diagram/ model present the information without needing explanation?

SCIENTISTS GET....

...INVOLVED....EXCITED ABOUT THEIR FINDINGS...VOCAL... ...THEY INFLUENCE PEOPLE...

Engage with Science

THINGS TO DO

Read the news and take an interest in Science issues
#Participate in class discussions
#Take action on local or national issues

THINGS TO ASK

How does this affect me?
Have I asked my family and friends for their opinions?
What could I do to put my thoughts/opinions into action?