

epiSTEMe
Student worksheets
Introductory Module

FIRST NAME

LAST NAME

Worksheet 1: Evaluating Talk

Name:

Think about the way you talk when you're working in a group.

Give yourself a score out of 4

4 = Brilliant!! Couldn't be better! Keep it up!

3 = Really good! Maybe one or two things to work on though. Aim for 4!

2 = Not bad! But some problems

1 = Disaster!!! Completely terrible!!!

I can offer these qualities to my group	My marks out of 4	
I listen carefully		
I think about what other people say		
I can say clearly what I think		
I always give reasons for my opinions		
I usually understand other people's point of view		
I respect what other people say		
I have some great ideas		
I can explain what I mean		
I ask questions which help others to talk		
I can co-operate with anyone		
I am happy to share what I know		
I am thoughtful		
I talk confidently		
I can get people to change their minds		
I understand why work in groups is useful		
I am happy if my group does well		
I understand the importance of talk		
I know what makes a good discussion		

Worksheet 2A: Are these useful rules for discussion?

Rules	Yes, No or Maybe (give your reasons!)
1. Stick to your point of view, despite what anybody says	
2. Ask everyone in turn for their opinion.	
3. Ask for reasons why.	
4. If you don't understand something, keep quiet	
5. Be critical of the idea, not the person who put it forward.	
6. If people challenge your ideas, you should give reasons for them.	
7. Choose as quickly as you can so that you get finished.	
8. Discuss all the alternatives before deciding.	
9. If a wrong decision is made, point out who is to blame.	
10. If you hear a good reason, you can change your mind.	
11. If you know something important, keep it to yourself.	
12. If you want to be heard you have to speak forcefully or shout.	
13. Try agree on what you all think	
14. Make up your own mind straight away and stick to it.	
15. Respect other people's ideas.	
16. The group should try to agree before making a decision.	
17. If you don't understand what someone says, ask them to explain	
18. The group should try to stick to the topic.	
19. The oldest person should lead the talk.	
20. There should be a leader and the group does what they say.	
21. You should always agree with your friends.	
22. All relevant information is shared among the group.	
23. Build on what the previous speaker said.	
24. Be prepared to change your mind - it shows you have listened and can accept good reasons.	
25. Look and listen to the person who is talking.	
26. If you don't like someone, make sure they don't get heard.	
27. In the end it doesn't matter what is decided.	
28. If someone gives a reason you don't think is good, you should question it.	

Worksheet 2B: Our ground rules for talk

Names of members of our group:

Talk together to decide on your group's suggested ground rules for talk.

Think carefully about how you can best put your rules into written form.

When your list is ready, decide together on an order of importance for your rules.

	Ground Rule for Talk	Order of importance <i>A (very important) B C D E</i> <i>F (not important)</i>
1		
2		
3		
4		
5		
6		

Please discuss and comment on these questions:

1. Was the way your group talked a good example of people following the above rules?

2. What suggestions would you make to improve the quality of your group's discussion?

Worksheet 3M: Who does maths?

Each group will need a set of job cards and a set of the numbered cards on which people say what they do.

Discuss these questions in your group and write down the answers that you agree on.

Who said what?

1. Match each numbered card with the job card of the person who said it.
2. Explain what clues you used to make the match.

Job title	Card number	Clues for match
Agricultural advisor		
Army officer		
Children's nurse		
Civil engineer		
Operational researcher		
Road manager		



Do they use maths?

3. Decide whether each person uses maths in their job.
4. Explain the reasons for your answer.

Job title	Maths used?	Reasons for answer
Agricultural advisor		
Army officer		
Children's nurse		
Civil engineer		
Operational researcher		
Road manager		

Worksheet 3S: Are nurses scientists? (page 1/2)

Are nurses scientists?



A "Nurses use scientific equipment, such as thermometers. That makes them scientists."


B "Nursing is about caring for people. Science is about how things work, not about people."

C "To help people get well, nurses have to solve problems by collecting evidence and testing ideas. That's science."

D "Nurses have to know about science, for example about disease and infections, but they do not do science."

E "Doctors are medical scientists, but nurses are only their helpers."

F "Nurses cannot be scientists, as they work in hospital wards, and not in laboratories."



The box contains some statements about nurses' work and whether they can be considered scientists.

Discuss these statements in your group.

Decide, as a group, whether to agree or disagree with each statement and how best to explain your reasons.

Use the table on the back of this sheet to record your conclusions. Later on this will help your group to contribute to discussion in class.

Come up with a better statement for one of the statements if you can.

A BETTER STATEMENT FOR STATEMENT ____:

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Worksheet 3S: Are nurses scientists? (page 2)

<i>STATEMENT A</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

<i>STATEMENT B</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

<i>STATEMENT C</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

<i>STATEMENT D</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

<i>STATEMENT E</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

<i>STATEMENT F</i>	<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>	

Worksheet 4M: What's this shape? (page 1/2)

What's this shape?

A It's a diamond, not a square, because its sides are slanting.

B It's a rectangle because all its angles are right angles.

It's not a quadrilateral because all its sides are the same length. **C**

This shape has all its sides the same length and all its angles right angles

The box contains some statements about the shape shown at the top right.

Discuss these statements in your group.

Decide, as a group, whether to agree or disagree with each statement and how best to explain your reasons.

Come up with a better statement if you can.

Use the table on the back of this sheet to record your conclusions.

Later on this will help your group to contribute to discussion in class.

Worksheet 4M: What's this shape? (page 2)

STATEMENT A

DECISION (Agree or disagree)

REASONS

BETTER STATEMENT

STATEMENT B

DECISION (Agree or disagree)

REASONS

BETTER STATEMENT

STATEMENT C

DECISION (Agree or disagree)

REASONS

BETTER STATEMENT

Worksheet 4M+: Can you draw this quadrilateral? (page 1/2)

Draw this quadrilateral?

Can you draw a quadrilateral that has all three of these properties?

X It has exactly one pair of sides that are equal in length.

Y It has exactly one angle that is a right angle.

Z It has exactly one pair of sides that are parallel to each other.

Each box (X, Y and Z) describes a property that a quadrilateral can have. Check in your group that you agree what each property means.

Investigate, as a group, whether it is possible to draw a quadrilateral that has all three properties (X, Y and Z).

If your group thinks **it's possible** to draw such a quadrilateral, decide, as a group, how to persuade other people that your quadrilateral really does have all three properties.

If your group thinks **it's impossible** to draw such a quadrilateral, decide, as a group, how to persuade other people that it really is impossible for a quadrilateral have all three properties.

Use the table on the back of this sheet to record your conclusions. Later on this will help your group to contribute to discussion in class.

Worksheet 4M+: Can you draw this quadrilateral? (page 2)

Is it possible to draw a quadrilateral that has all the three properties?

DECISION (Possible or Impossible)

REASONS

Worksheet 4S: Spot the metals

(page 1/2)

Spot the metals

In science, we often classify things into groups. This table lists some properties of substances called *metals*, and substances called *non-metals*.

Properties of metals:	Properties of non-metals
Metals are usually solids with high melting temperatures.	Non-metals are usually gases at normal temperatures, or solids which can be melted quite easily.
A few metals are attracted to magnets	Non-metals are not attracted to magnets
All metals are good conductors of electricity.	Non-metals are usually good insulators of electricity.

The cards tell you about the following substances: *Helium, Iron, Oxygen, Tellurium, Vanadium (and Carbon)*

In your groups, see if you can agree which substances on the cards are metals. Make sure you all agree on the reasons for your group's decisions.

Each group will need a set of element cards.

Decide together whether or not the substances named on each card is a metal or not.

Discuss each card in turn and then put the cards in two piles, 'metal' and 'non-metal'.

Use the table on the back of this sheet to record your main reasons for whether or not the substances are metals.

Later on this will help your group to contribute to discussion in class.

Worksheet 4S: Spot the metals (page 2)

<i>HELIUM</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	
<i>IRON</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	
<i>OXYGEN</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	
<i>TELLURIUM</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	
<i>VANADIUM</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	
<i>CARBON</i>	<i>DECISION (Metal or non-metal)</i>
<i>REASONS</i>	