

**If...then**

Critical Thinking Programme  
Parents Series



Inference

Level 1 : Lesson 1

# if...then

If...then provides courses, products, and guidance that enable the development of skills in Critical Thinking.

## How to use this PDF

This is a sample unit from the if...then critical thinking programme. Full details of the programme can be obtained by contacting if...then ltd. via the company's website: [www.ifthen.co.uk](http://www.ifthen.co.uk). If...then ltd provides training, teaching, and resources in critical thinking.



## Critical Thinking?

Critical Thinking is concerned with the significance of claims that are made - it is a questioning way of thinking. By asking questions, we try to make things clearer. By making things clearer, we can make judgements as to the quality of claims that are made and any judgements that are made from them.

# Inference: level 1: lesson 1

## Introduction

As with all of the material in the critical thinking programme, it is important that you read this material before working through it with your child(ren).

What's called 'inference' is that which goes on when someone takes, say, a piece of information and says that something follows from it. Another way of describing this is to say that an inference is something that is drawn from (say) a piece of information.

Here's an example.

It's raining heavily.

So you need to take an umbrella with you.

You can see that the statement 'It's raining heavily' is used to draw the inference that 'you need to take an umbrella'. In other words, the need to take an umbrella is seen as following from the fact that it's raining heavily.



You'll also have seen that here the word 'so' indicates that an inference is being drawn. Here are some more examples.

It's raining heavily.

So you won't need to water the garden.

It's raining heavily.

So we'll need to cancel the picnic.

In examples like these, the word 'so' shows when an inference is being drawn. An inference being drawn can also be shown using another word. This is the word 'because'.

Because it's raining heavily, you need to take an umbrella with you.

Because it's raining heavily, you won't need to water the garden.

Because it's raining heavily, we'll need to cancel the picnic.

The role of these words 'because' and 'so' is central to understanding inference.

It needs to be remembered that some inferences might not obviously follow.

It's raining heavily.

So it's a warm day.

It might be that this inference could be drawn but it looks an unlikely one. Here's another example; in this one, the inference simply doesn't follow.

It's raining heavily.

So this knife is very sharp.

The exercises that follow are designed to develop (and reinforce) your child's skills in inference.

After completing this material, your child should be able to:

- understand what's meant by the term 'inference';
- understand the connection between 'because' and 'so' in inferences;
- accurately use the word 'so' in drawing inferences;
- accurately use the word 'because' in drawing inferences;
- draw inferences from simple information;
- make judgements as to whether inferences can usefully be drawn from given statements.

The picture opposite should be printed and used with the exercise that follows.



We start with this picture of a girl holding a cake.

Ask your child what they can say about the girl in the picture. They're likely to suggest these. (It would be helpful for the next exercise if you – or they - write these down.)

- The girl is holding a cake (or something like this).
- The girl wants to eat the cake.
- The girl is smiling.
- The girl is happy.

But, of course, they're also likely to give other factual statements about the girl.

- She's got blonde hair.
- She's wearing a spotty dress/headband.

And the cake...

- It looks like the cake's got cream/icing on it.

Take the first group of statements and ask your child to look for links between them, using the words 'because' and 'so'.

Give your child one example of each use of the words.

*Because* the girl likes eating cakes, she is smiling.

The girl likes eating cakes, *so* she is smiling.

Ask your child to come up with others, in both 'because' and 'so' forms. They'll probably come up with something like these.

The girl is happy, so she is smiling.

The girl is smiling because she is happy.

The girl is holding a cake because she likes eating cakes.

The girl likes eating cakes so she is holding a cake.

Some of them might even come up with more complex ones. (Complex ones like this are unlikely at this stage, so be very impressed if one is given – spot the inference there!)

The girl likes eating cakes, so she has been given a cake, so she is happy.

It would be useful to make the point that the way in which they have connected statements like this works only with statements that are relevant to each other. To emphasise this, ask them what the problem is with the following inference.

The girl's got a spotty dress, so she's going to eat a cake.



Or this:

The girl's got blue eyes because she's wearing a spotty dress.

In discussing why these last two inferences simply can't be usefully drawn, your child should see important things about the relationship between statements connected by 'because' and 'so'. You should focus on the point that an inference should usefully draw something out from a claim. There's nothing in the fact that the girl's wearing a spotty dress that allows us to say anything about her eating the cake (and, of course, there's no useful connection between her eyes being blue and her dress).

Having said that, your child might want to link the spotty red cake case with the girl's spotty red headband. The whole thing of possible connections between spotty dress, headband, and cake case could be usefully explored here.

The next exercise uses the same idea of taking a picture and producing inferences from it. Ask your child to take each picture and try to come up with two statements about it, linked by a 'because' and a 'so'. It would be good if they could do this more than once for each picture. Either you or they could write their answer in the space given (or they could simply tell you their answer(s)).

# WHAT FOLLOWS FROM WHAT?

(1) the dog



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# WHAT FOLLOWS FROM WHAT?

(2) the skipping children



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# WHAT FOLLOWS FROM WHAT?

(3) the winning swimmers



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Answers might include the following.

## The dog

The dog is running because it wants to chase something.

Because it enjoys running, the dog is running fast.

## The skipping children

All the children enjoy skipping, so they do it together.

Because they want to get really good at it, the children do lots of skipping.

Because they've got some rope, the children are playing skipping.

## The winning swimmers

The girls have won their races so they are happy.

Because the girls are really good at swimming, they won their races.

The girls won their races so they were given medals.

As an additional exercise, you could ask them to come up with examples that don't follow (as they looked at earlier). Here are some examples.

- The dog likes running, so he's got a brown collar.
- Because one of the girls is wearing a pink dress, she enjoys skipping.
- Both of the girls are wearing goggles, so they're happy.

Doing these unjustified inferences will reinforce the point that an acceptable inference has to draw on something that is *relevant* in the statement.

At the end of this session, if it has been a productive one, your child might want to complete the following inferences (with their name inserted as appropriate).

..... has done well with this work, so.....  
.....  
.....

Because.....has done well with this work, .....  
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## If...then Ltd

if...then Ltd has been active in the field of Critical Thinking for over ten years. We allow Critical Thinking to develop freely, by stressing its hugely creative potential.

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