## *Using picture books to teach critical thinking in early years classrooms*

The importance of teaching children from a young age to think critically about material presented to them, rather than to be unquestioning consumers of information, seems to be increasing in this era of fake news.

Misinformation is readily available and often cleverly disguised as fact. Answers found in an internet search are not always correct. Being able to navigate one's way through it all is a very important skill, regardless of age.

While some may be suitable, I am not suggesting we start discussing global news stories in our early childhood classrooms. We can begin with discussions of stories and information we present to them each day.

**Teachers can help children develop critical thinking by:**

- pointing out and discussing inaccuracies and inconsistencies that occur in texts;
- encouraging them to think about what they are reading and hearing and to evaluate it against what they already know;
- supporting them to verify the source of the information and to check it against other more authoritative or reliable sources; not everyone is an expert;
- helping them to recognise that every author has a purpose and to identify that purpose;
- inviting them to ask questions about what they are reading and to interrogate the content;
- letting them know that it is important to not just accept everything encountered in print.

I am not suggesting that every text read must be interrogated relentlessly. Reading for enjoyment is important too. However, being aware of and using the teachable moments as they appear are effective ways of tuning children into any inaccuracies and misinformation that occur.

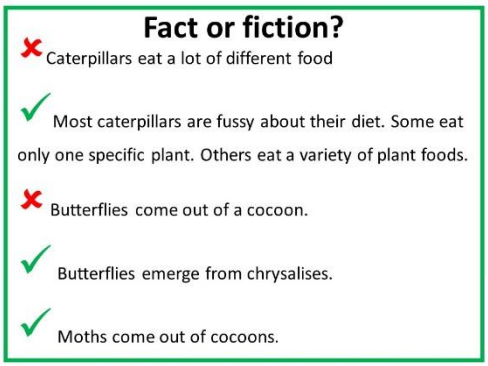
**Teach critical thinking in a minibeast science unit with Eric Carle's *The Very Hungry Caterpillar***

I have no doubt that you would be familiar with the very popular picture book *The Very Hungry Caterpillar* by Eric Carle. It is probable that you have read it to your class, and likely that you have used it in your literacy and mathematics lessons. But have you considered using it as a resource for teaching critical thinking?

It provides a perfect opportunity.

Towards the end of a minibeast science unit, when the children have learned about the life stages of a butterfly through observations and reading, introduce the story. The children may already be familiar with it. That's okay. We're going to ask them to think about it a little differently, to think critically, rather than simply for enjoyment.

With their knowledge of butterfly life stages, it usually takes little prompting for children to notice the inaccuracies in the story.

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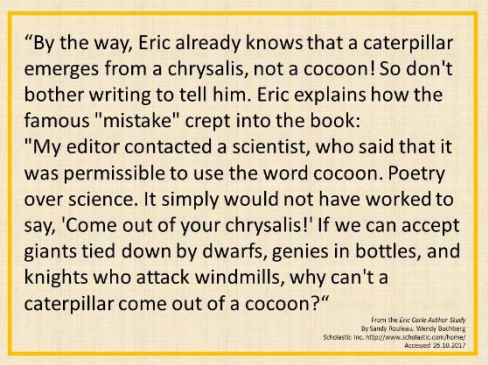
They often want to write to the author and tell him of his mistake.

However, when told that he already knows and that he isn't going to change it, as confirmed in an interview reported on the Scholastic website, they are incredulous.

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"Why would he do that?" they ask.

When told that he doesn't care that it isn't quite right, they are indignant.

Their knowledge of butterfly life stages can be affirmed and, more importantly, the understanding that, just because something is in print doesn't make it true, can be developed.

There are many points for discussion in Carle's statement:

- His editor contacted a scientist – What sort of scientist? Scientists work with many different topics. Would every scientist be as reliable as the other?
- Permissible to use the word "cocoon" – Why? For what purpose?
- Is it okay to choose "poetry over science"? Chrysalis is a beautiful word, specific to the butterfly. What could be more poetic than that? Poetic and scientific! What a great combination!
- Why wouldn't it have worked to say, "Come out of your chrysalis"? Do you agree?
- A caterpillar doesn't come out of a cocoon. A caterpillar spins a cocoon; then a moth comes out of it; not a butterfly. Is this the same thing as having stories with giants and dwarfs, genies in bottles and knights who attack windmills?

What do you think?

Do picture book authors have a responsibility in imparting factual information to children?

How much of the responsibility should remain with the reader to verify the correctness or accuracy of what is read? How does one go about that?

Children may also like to discuss other questions, such as:

- When you read The Very Hungry Caterpillar, did you think caterpillars ate a lot of different food? Did you think butterflies came out of cocoons?
- What do you now know?
- Do picture book authors have a responsibility to ensure information shared is factual?
- What is the purpose of fictional picture books?
- Is a butterfly coming out of a cocoon the same as stories about giants and unicorns?


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An additional benefit is the development of a need to know, of verification of information. When children are presented with false information, they may be stimulated to seek out correct information and write books of their own, both fiction and non-fiction, that present the facts. For example, they may wish to investigate questions such as:

- What is the difference between a cocoon and chrysalis?
- How do butterflies and moths differ?
- What do butterflies eat?
- What do moths eat?
- What do butterfly caterpillars eat?
- What do moth caterpillars eat?

**Does it matter?**

Children realise early on that animals don't really behave like humans and wear clothing. They don't expect their toys to come to life and start talking. They quickly understand, when it is explained to them, that unicorns and dragons are mythical creatures and, to our knowledge, don't exist.

Children are not likely to say that elephants wear dresses because they saw one in a book. However, they may think that butterflies come out of cocoons if the error is not discussed. Does it matter?

Maybe not, but what does matter is that we teach children to be discerning rather than unthinking consumers. Inaccuracies such as these in books that are familiar to them, no matter how seemingly innocuous, are a good place to start teaching critical thinking in early childhood classrooms.

**It's not just *The Very Hungry Caterpillar***

Other inaccuracies often appear in children's stories. Most are harmless but some cause confusion and misunderstandings. It is important to be aware of these and, if the topic arises, make the most of the teachable moment to discuss them.

**King of the Jungle**


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The lion is often referred to as “King of the jungle” and appears in that setting in many stories. However, lions don’t live in jungles. They live in a variety of habitats, but jungle isn’t one of them. You knew that didn’t you? But what about the children? When will children learn that lions are not really kings of the jungle? Do you think it matters if children grow up thinking that lions live in jungles?

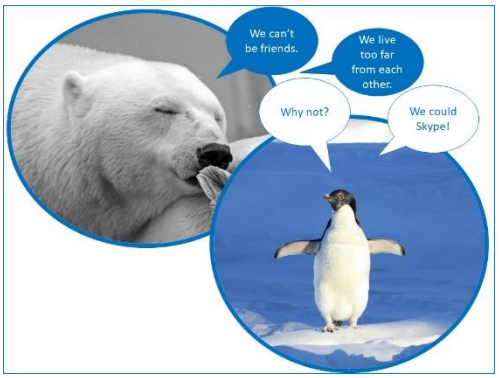
Does it matter if they think lions live in the same places as tigers? The phrase “Lions and tigers” rolls off the tongue, doesn’t it? This means children often mistakenly think they live near each other; but they don’t. Lions live in Africa and tigers live in Asia. They would never meet each other in the wild.

**What of penguins and polar bears?**

Other animals that don’t co-exist often appear in stories together, too.

For example:

Penguins often share a storyline alongside polar bears. Does this encourage children to think that penguins and polar bears co-exist? When do adults explain to children that penguins and polar bears live at opposite ends of the planet? At what age do you think children will happen upon that information? Does it matter?

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**Thinking critically about the illustrations too**

What about the way animals are visually portrayed in stories? Must the illustrations be anatomically correct?

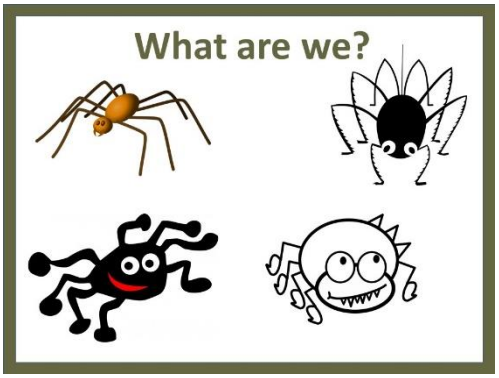
For example:

We all know that spiders have eight legs. Right?

If I was to ask you to draw a picture of a spider, how would you do it? Have a go. It will only take a second or two.

My spider:

Now compare your drawing with these:

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How did you go?

While children easily realise that the spiders in stories are fictional. They have less success is understanding that the images often do not represent what real spiders look like. Spiders have eight legs. These drawings show eight legged creatures. The story says they are spiders. That must be what spiders look like. Right?

Not necessarily. Real spiders look more like this one:


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Spiders have two body parts, not one; and all eight legs are joined to the cephalothorax, not the abdomen, as shown in most picture books. While I am sure you drew a spider correctly (didn't you?), most children and many adults draw them more as they are depicted in children's stories. Is this a problem?

**Conduct a fact-finding search**

When you discover and discuss one inaccuracy in text or illustration, children may like to search through other pictures books to see if they repeat the inaccuracy or are more factual. It is surprising how many stories about butterflies, even some purporting to be factual, contain inaccuracies. Check out stories with spiders to see how they are portrayed. How many are accurate? How many are stylised?

How else can you help children develop critical thinking to become discerning users of information?

**Misinformation in the media**

It is also important for children to realise that misinformation does not occur only in picture books. It is just as common in news media, as shown by these two articles.

This article appeared in Brisbane's *Courier-Mail* on 7 December 2013.


The magical process of a large and colourful butterfly emerging from its pupa has been captured by a Spanish photographer. Artist Jimmy Hoffman, 52, who lives in Calonge in the northeast corner of Spain, took a series of photographs of the step-by-step process at his home. After waiting patiently for five hours, the photographer captured the moment the two-tailed pasha butterfly emerged from its cocoon – from when its wings could just be seen peeping out of the chrysalis – to when it finally became visible in all its glory. It took about 30 minutes. **Picture: Jimmy Hoffman/Solent News**

The journalist appears to have taken an each-ways bet, referring to the pupa correctly as a chrysalis, and incorrectly as a cocoon, both in the same sentence. I guess he figured he'd get it right at least once.

This article, again from the Courier-Mail, on 26 January 2014 also contains inaccuracies:


## Deadly thirst for gliders

Furry flyers like these two squirrel gliders are falling prey to dog and cat attacks with skyrocketing temperatures forcing them down from trees and into the clutches of domestic pets.

RSPCA spokesman Michael Beatty said summer was a peak time for attacks on native marsupials, with this season likely worse due to its extreme temperatures.

"It's not just the heat, but it's the time when the young are around. They haven't long been born and they're just finding their feet, or their wings, so to speak," he said.

Wildlife educator Ben Bawden, from Bawden's Cockatoo Chaos, said while sugar gliders Snugglepot and Cuddlepie (left) were raised in captivity, their wild cousins were often attacked while searching for water.

"Because the trees are drying out . . . the animals are coming lower down for water. Normally they get everything from the leaves," Mr Bawden said.

Squirrel gliders don't fly, and they don't have wings.

Eric Carle says, *"If we can accept giants tied down by dwarfs, genies in bottles, and knights who attack windmills, why can't a caterpillar (sic) come out of a cocoon?"*

What do you think?

Do picture book authors have a responsibility for informing their audience? Is a butterfly coming out of a cocoon in the same realm as giants tied down by dwarfs? Would we accept a child hatching out of an egg? What parts of a story should be based in reality and which parts can be imagined?

I hope these suggestions have got you thinking about opportunities that may arise to help develop critical thinking in your young learners.

# Fact or fiction?


Caterpillars eat a lot of different food


Most caterpillars are fussy about their diet. Some eat only one specific plant. Others eat a variety of plant foods.


Butterflies come out of a cocoon.


Butterflies emerge from chrysalises.


Moths come out of cocoons.

“By the way, Eric already knows that a caterpillar emerges from a chrysalis, not a cocoon! So don't bother writing to tell him. Eric explains how the famous "mistake" crept into the book:
"My editor contacted a scientist, who said that it was permissible to use the word cocoon. Poetry over science. It simply would not have worked to say, 'Come out of your chrysalis!' If we can accept giants tied down by dwarfs, genies in bottles, and knights who attack windmills, why can't a caterpillar come out of a cocoon?“

From the *Eric Carle Author Study*
By Sandy Rouleau, Wendy Buchberg
Scholastic Inc. http://www.scholastic.com/home/
Accessed 26.10.2017

## Chrysalis of the Monarch Butterfly

By Hectonichus (Own work) [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0) or GFDL (http://www.gnu.org/copyleft/fdl.html)], via Wikimedia Commons

## Cocoon of the Small Emperor Moth

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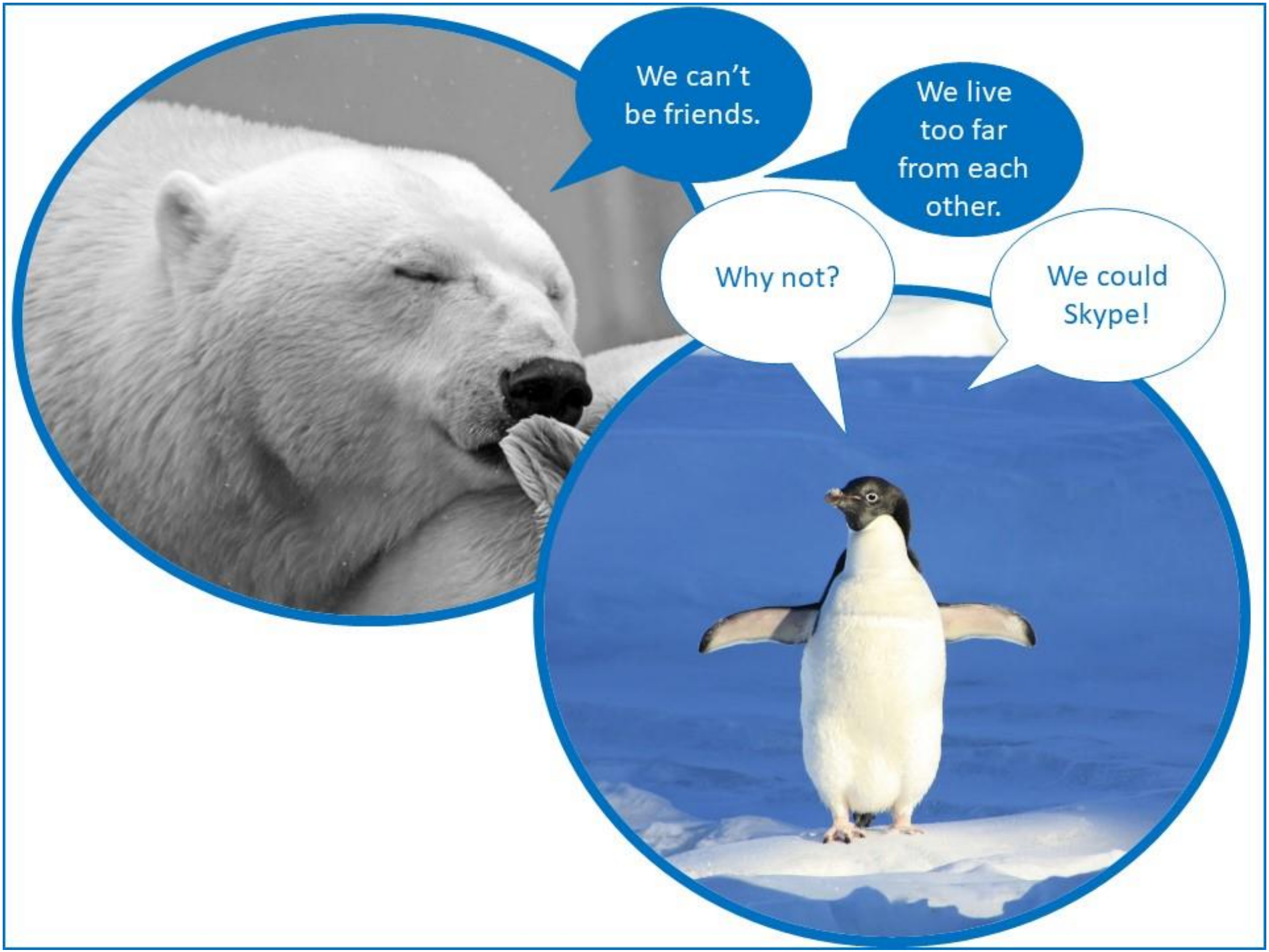
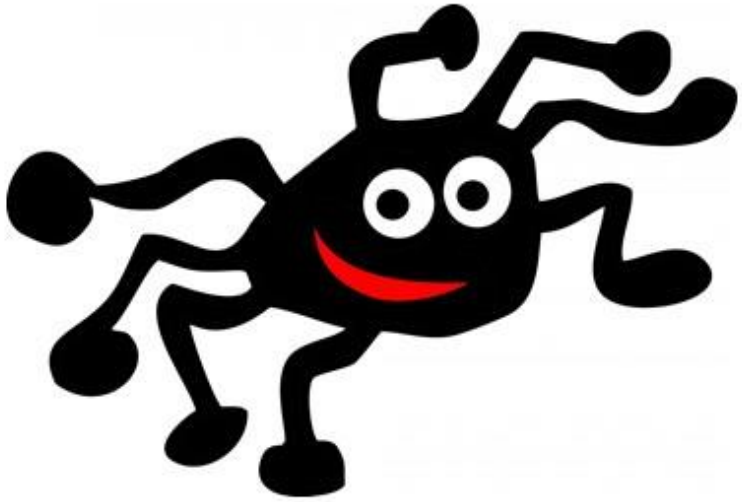
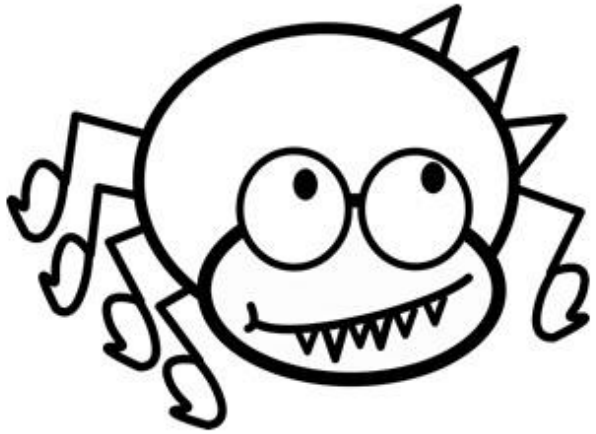


# What are we?





I'm a spider.