**Organizing – Paragraph Structure, Topic Sentences and Transitions**

**Introduction**

Even the most well researched piece of science writing will fail to make the impact it should if it is not organized logically to be easy to read and interpret. The trick to organizing your writing is to develop a writing outline before you put pen to paper (or fingers to keyboard); for more information on outlines, access the complementary resource ‘Writing Outlines’ on our site.

There are three key things that you can focus on to make sure that your writing is well organized. Firstly, you can split it into paragraphs based on content. Secondly, you can write effective topic sentences to kick off each paragraph with, and thirdly, you can ensure each sentence flows smoothly into the next by making sure your transitions are well chosen.

**Paragraphs**

Paragraphs are extremely important components of an effectively structured piece of writing because they organize material in a way that makes it easier to follow for your readers. Structuring your writing into clear, effective paragraphs that address individual ideas will help you organize your work, which in turn gives your readers the best possible chance of understanding the points you are trying to make.

Scientists and researchers often find themselves communicating the results of important studies in an attempt to convince others that they have discovered a new piece of knowledge that will have implications for future research and/or immediate real-world applications. As such, it is even more crucial that they are able to tell a story effectively because they have to convince their audience that their arguments are valid.

The three golden rules below will help you to write clear paragraphs, although you should note that these are just the main ones that you will need to focus on; there are plenty of others that will improve your writing as well. To begin with, try to make sure that you:

**1.** Make **one main point** per paragraph. It is good practice to tell your reader in one clear, concise sentence (called a topic sentence) at the beginning of each paragraph what you will be expanding upon in that particular paragraph.

**2.** Funnel information from **general to specific**. Treat each paragraph as a mini-essay. It is a good idea to start by providing general information before making the information that follows more specific.

**3.** Provide evidence to fully support each paragraph. Although it is a good idea to make most paragraphs roughly similar in terms of word count, it is more important to make each paragraph similar in terms of content completeness. You must provide evidence to back up the general statement(s) made early in each paragraph.

**Topic Sentences**

An effective topic sentence should begin each new paragraph by informing your reader what the upcoming paragraph is about, and it should also link the flow of your argument from the previous paragraph to the current one. The key is to be specific enough so that a reader knows exactly what to expect, and which direction your writing is heading in, without being so specific that it only applies to part of the paragraph.

As a rough indicator of whether you have written clear topic sentences, a reader in a real hurry should be able to read these, and these only (i.e. avoid the detailed information in all the paragraphs), and still be able to understand the backbone of the argument you are making. You can do this yourself, when you have finished writing, as a guide to see whether your writing flows smoothly and follows a logical path.

**Some Examples (errors and improvements**)

A1 (topic sentence missing):

“When cornered by a pack of wolves, even the most terrified hare will run within the closing circle, desperately seeking an escape route. Fish caught in a trawler net will swim round and round, looking for a way out. Even primitive micro-organisms will move as far away as possible from a negative stimulus, somehow conditioned to flee from impending death.”

**B1 (with effective topic sentence):**

**“There is a huge diversity of life on earth, but all organisms display a common desire to survive.** When cornered by a pack of wolves, even the most terrified hare will run within the closing circle, desperately seeking an escape route. Fish caught in a trawler net will swim round and round, looking for a way out. Even primitive micro-organisms will move as far away as possible from a negative stimulus, somehow conditioned to flee from impending death.”

**A2 (topic sentence does not relate closely enough to paragraph):**

“There is a huge diversity of life on earth, but all organisms display a common desire to survive. When cornered by a pack of wolves, even the most terrified hare will run within the closing circle, desperately seeking an escape route. Wolves co-ordinate their hunting efforts so as to increase their chances of catching prey, but those with higher social ranks earn the right to eat before their inferiors. Hares, on the other hand, typically forage for food on their own. Although they do not benefit from the increased awareness of where food might be, which would come from searching with others, they never have to share their food when they find it.”

**B2 (topic sentence relates directly to paragraph):**

**“Wolves and hares use different foraging strategies, and there are positives and negatives associated with each.** Wolves co-ordinate their hunting efforts so as to increase their chances of catching prey, but food must be shared and wolves with higher social ranks earn the right to eat before their inferiors. Hares, on the other hand, typically forage for food on their own. Although they do not benefit from the increased awareness of where food might be, which would come from searching with others, they never have to share their food when they find it.”

**Transitions**

When reading over your work, ask yourself whether the flow of information is smooth. Although it is often difficult to remember everything that you have just read, it is a bad sign if you find yourself having to jump backwards again and again to fully understand something.

Before you get used to making smooth transitions between sentences, it is a good idea to ask a friend or classmate to read your work and tell you whether they followed your thought process from the first sentence to the last. If they found it difficult, you probably need to work on your transitions. An effective transition should do at least two of the following three things. It should:

**1.** Signal the point at which you are shifting to another idea.

**2.** Act as a preparatory signpost for what is coming up next.

**3.** Explain to the reader how each idea is connected.

**An Example**

**A1 (Poor transitions):**“Global warming will have negative consequences for polar bears. As temperatures rise they will have a smaller habitat in which to live. Also, there will be less food available for them because there will be smaller populations of krill. Polar bear populations are thus affected by the amount of ice available.”

**B1 (Good transitions):**“Global warming will have negative consequences for polar bears for two main reasons. Firstly, because increased temperatures cause increased melting of ice on which the bears live, there will be a reduced area in which they can live. Secondly, many species that polar bears rely on for food will be less numerous than in the past because their main food source, krill, can only breed successfully underneath ice. Therefore, the reduction of ice is the key factor in limiting polar bear populations.”

B1 is better than A1 because:

**1.** **Each transition informs the reader that a new idea is about to be elaborated on**

**2. Each sentence begins with a ‘signpost’ that links it to the next one**

**3.** **Each transition connects the points made in the whole text with one another**

**Organizing – Paragraph Structure, Topic Sentences and Transitions Quick Quiz**

**1)** Below are 10 sentences that together make up a short piece of science writing. Try to split the writing into **three** separate paragraphs to organize it more effectively (**three marks**).

*1Thoroughbred racehorses have been bred selectively for over 200 years. 2The breed has become faster with each passing decade. 3These horses have also become more prone to injury over time. 4To prove that they have become faster, it is easy to look in the record books and compare race times of winning horses that ran over the same distances. 5In one-mile races, which are commonly run every day, the best modern-day horses tend to finish almost two seconds faster than those racing 200 years ago. 6Two seconds might not seem that much, but it is enough to mean the best horses of the early 1800’s would struggle to compete with the slowest horses of the 2000’s. 7Horse-racing registries show that around 5 out of every 1,000 modern-day horses suffer impact injuries, such as fractures or limb soreness. 8Going back to the early 1800’s, best estimates place that number at nearer to 1 out of every 1,000. 9This is despite modern veterinary practices being considerably more advanced. 10Horses with fractured legs are routinely saved – and some even race again –10 whereas the same was not true 200 years ago.*

**2)** Add in **three** topic sentences to your newly arranged three paragraphs, to make sure the reader would be well ‘sign-posted’ as to what to expect from each one (**three marks**).

**3)** Add in effective transitions throughout the whole paragraph, to make sure each sentence (and its logic) flows smoothly into the next one. For ‘grading’ purposes, you should add **four transitions (four marks)** between sentences in one of the paragraphs (the one that now has five sentences in it). *Hint: One-word transitions and longer phrases can all be effective; the importance lies in linking the sentences together to build a cohesive story.*

**Quick Quiz Answer Key**

To check your answers and see whether you are now a wizard at organizing your writing, and using topic sentences and transitions effectively, you should access the answer key **below.**

**1)** Below are 10 sentences that together make up a short piece of science writing. Try to split the writing into **three** separate paragraphs to organize it more effectively (**three marks**).

The correct solution appears below:

*1Thoroughbred racehorses have been bred selectively for over 200 years. 2The breed has become faster with each passing decade. 3These horses have also become more prone to injury over time.*

*4To prove that they have become faster, it is easy to look in the record books and compare race times of winning horses that ran over the same distances. 5In one-mile races, which are commonly run every day, the best modern-day horses tend to finish almost two seconds faster than those racing 200 years ago. 6Two seconds might not seem that much, but it is enough to mean the best horses of the early 1800’s would struggle to compete with the slowest horses of the 2000’s.*

*7Horse-racing registries show that around 5 out of every 1,000 modern-day horses suffer impact injuries, such as fractures or limb soreness. 8Going back to the early 1800’s, best estimates place that number at nearer to 1 out of every 1,000. 9This is despite modern veterinary practices being considerably more advanced. 10Horses with fractured legs are routinely saved – and some even race again – whereas the same was not true 200 years ago.*

**2)** Add in **three** topic sentences to your newly arranged three paragraphs, to make sure the reader would be well ‘sign-posted’ as to what to expect from each one (**three marks**).

**Example** solutions appear in **bold** font below:

***Horse racing has, over time, led to the thoroughbred racehorse evolving physically.*** *1Thoroughbred racehorses have been bred selectively for over 200 years. 2The breed has become faster with each passing decade. 3These horses have also become more prone to injury over time.*

***Comparisons between horses running under the same conditions have shown that today’s racers are quite significantly faster than those from the past.*** *4To prove that they have become faster, it is easy to look in the record books and compare race times of winning horses that ran over the same distances. 5In one-mile races, which are commonly run every day, the best modern-day horses tend to finish almost two seconds faster than those racing 200 years ago. 6Two seconds might not seem that much, but it is enough to mean the best horses of the early 1800’s would struggle to compete with the slowest horses of the 2000’s.*

***Treatments for injured horses are far more advanced these days, which is good, because today’s racers are more frequently injured than those that ran in the past.*** *7Horse-racing registries show that around 5 out of every 1,000 modern-day horses suffer impact injuries, such as fractures or limb soreness. 8Going back to the early 1800’s, best estimates place that number at nearer to 1 out of every 1,000. 9This is despite modern veterinary practices being considerably more advanced. 10Horses with fractured legs are routinely saved – and some even race again – whereas the same was not true 200 years ago.*

**Note that these are effective topic sentences because reading them – and them alone – still tells the reader the most important elements of the story:**

***Horse racing has, over time, led to the thoroughbred racehorse evolving physically.***

***Comparisons between horses running under the same conditions have shown that today’s racers are quite significantly faster than those from the past.***

***Treatments for injured horses are far more advanced these days, which is good, because today’s racers are more frequently injured than those that ran in the past.***

**3)** Add in effective transitions throughout the whole paragraph, to make sure each sentence (and its logic) flows smoothly into the next one. For ‘grading’ purposes, you should add **four transitions (four marks)** between sentences in one of the paragraphs (the one that now has five sentences in it).

**Example** solutions appear in **bold** fontbelow:

***Horse racing has, over time, led to the thoroughbred racehorse evolving physically. This is because****1thoroughbred racehorses have been bred selectively for over 200 years.* ***As a result,*** *2the breed has become faster with each passing decade.* ***However,*** *3these horses have also become more prone to injury over time.*

***Comparisons between horses running under the same conditions have shown that today’s racers are quite significantly faster than those from the past. Objectively,*** *4to prove that they have become faster, it is easy to look in the record books and compare race times of winning horses that ran over the same distances.* ***For example,*** *5in one-mile races, which are commonly run every day, the best modern-day horses tend to finish almost two seconds faster than those racing 200 years ago.* ***On first reading this,*** *6two seconds might not seem that much, but it is enough to mean the best horses of the early 1800’s would struggle to compete with the slowest horses of the 2000’s.*

***Treatments for injured horses are far more advanced these days, which is good, because today’s racers are more frequently injured than those that ran in the past. For example,*** *7horse-racing registries show that around 5 out of every 1,000 modern-day horses suffer impact injuries, such as fractures or limb soreness.* ***In comparison,*** *8going back to the early 1800’s, best estimates place that number at nearer to 1 out of every 1,000.* ***Surprisingly*,** *9this is despite modern veterinary practices being considerably more advanced.* ***Nowadays****, 10horses with fractured legs are routinely saved – and some even race again – whereas the same was not true 200 years ago.*