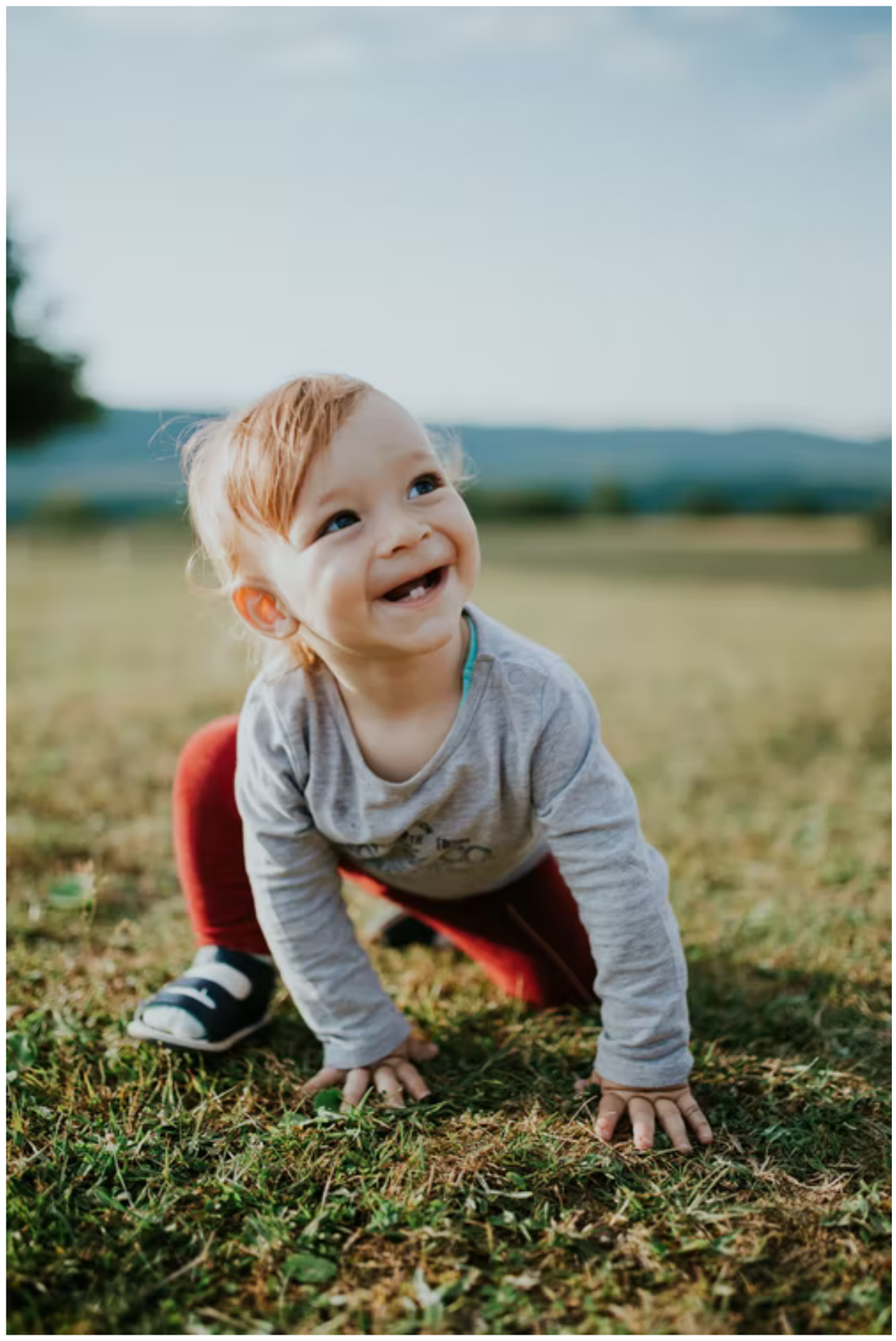
Neurodiversity Early Years Service®

Multi-sensory approaches to learning

We know that babies and young children naturally explore and learn about the world through their senses. This includes developing their physical co-ordination through things like crawling or feeding themselves, their balance during tummy time and as they begin to pull themselves to standing. We often see babies putting things in their mouths, banging toys together, and being soothed by the sound of their care givers voice or by cuddling with them. During this time, the brain makes lots of connections about what things are and how they work – for example, when a baby picks up a toy, they learn how much force and pressure they need to lift the toy without losing their balance or accidentally hurting themselves with it! They learn to co-ordinate their arms and legs to move forwards or backwards at the speed they need to reach their desired destination. The more they repeat these experiences, the stronger the connections become in the brain.



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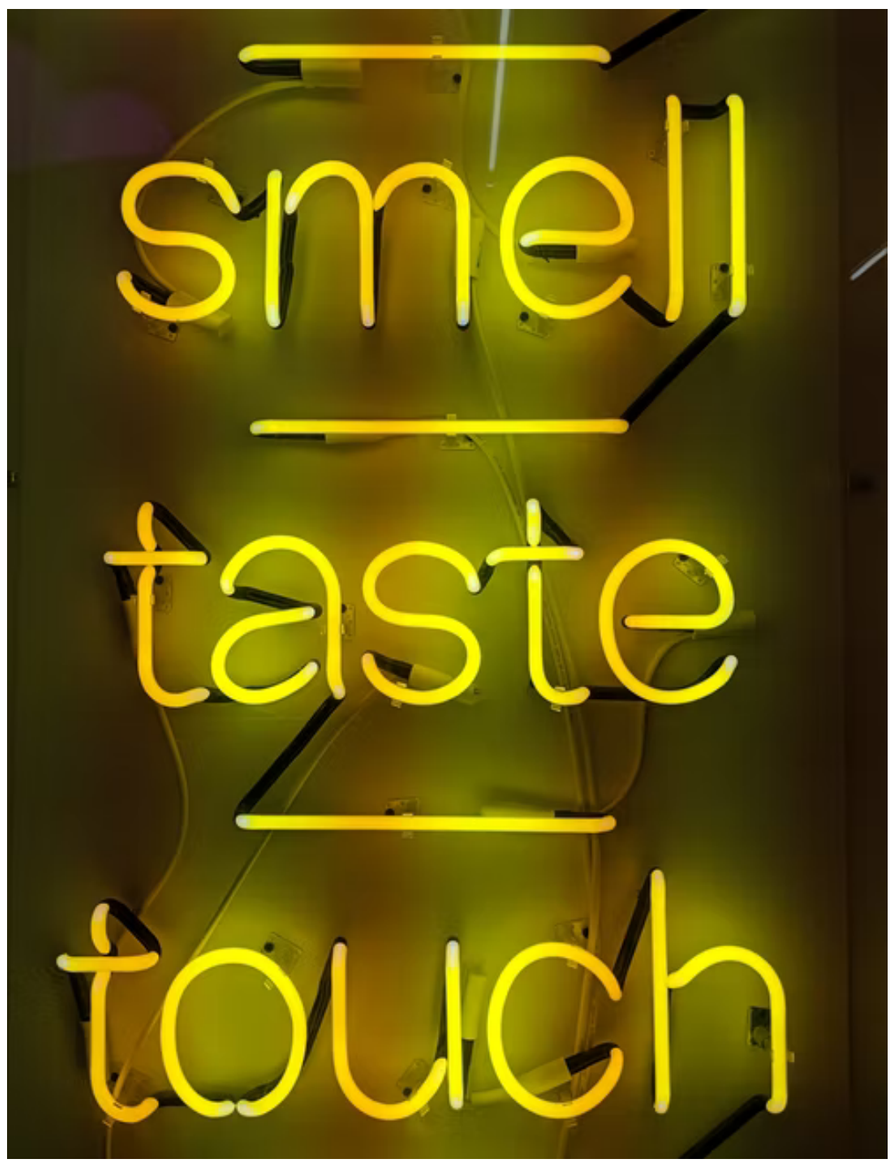
What is multisensory learning?

Multisensory learning is sometimes referred to as ‘whole brain’ learning. Learning experiences that stimulate more than two sensory systems at a time (such as audio, visual and tactile) activate different parts of the brain to receive, process and make sense of the information. For example, using auditory, visual and tactile input means that more connections are being made in different parts of the brain than if we just provide auditory (by talking). Repeated opportunities to engage with multisensory learning strengthens these connections, supporting recall and helping children to put information into context. For example, when learning about letter sounds, children are shown the letter and adults say the sound it makes. If they are taught a gesture to help them remember the sound (such as ‘j, j’ jump!’ accompanied with a small jump), they start to associate the sight of the letter ‘j’ with the sound it makes and the jumping movement.

If offered other ways to explore the concept, such as writing or drawing it in the sand with their finger, they will strengthen existing connections and create links with other parts of the brain. So multisensory learning can help children to remember what they have already learned and strengthen connections with new concepts. There are other benefits too!



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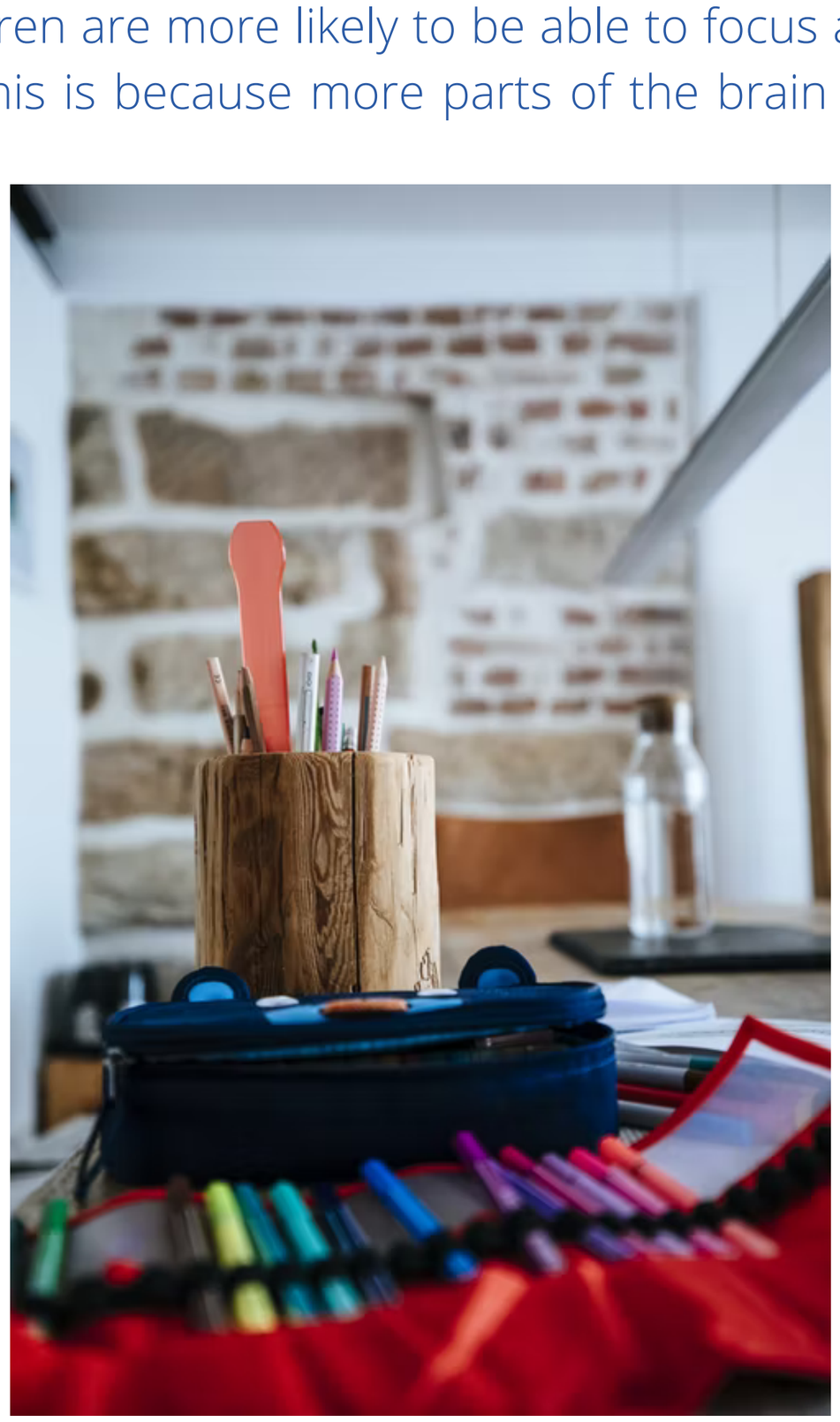
Attention and concentration

Research estimates suggest that children may be able to pay attention for roughly 2-3 minutes per year of their age. At the beginning of reception year, for example, when most children are 4 years old; their attention span could be between 8-12 minutes. There are lots of factors that can affect how well and for how long children can concentrate. However, when they engage in multisensory learning, children are more likely to be able to focus and engage for longer than they would otherwise. This is because more parts of the brain are active to receive and process the information.

For example, when performing a colour mixing experiment, children can hear the teacher explain, see the different colours and mix the paint themselves with a brush. They will also be processing the smell of the paint and if they get any on their hands this provides more sensory input! The next time they see and talk about the colour wheel with their teacher, they are more likely to recall this information. Multisensory learning lends itself to being active, and we know that movement is very important for all children to support their concentration.



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Accessibility

Multisensory learning is usually more engaging for children as it involves active participation. This might include opportunities for movement (eg gestures to support the teaching of new vocabulary) or use of resources (such as using manipulatives like cubes or counters to work out maths problems). When we provide a range of ways to access the concepts being taught, we are more likely to engage the whole class or group. Multisensory learning can also help adults to quickly assess what children have absorbed and clarify misconceptions. This can be particularly helpful for non-verbal children or those who do not feel confident in volunteering answers in front of the class – they may feel more comfortable to show you their thinking instead!

Key points to take away:

- Providing experiences that stimulate multiple sensory systems helps to create lots of connections in children's brains! The more they use those connections (through repetition and extension), the stronger they become and links to connections can form.

- Multisensory learning can be active – movement supports dopamine, the neurotransmitter which helps brain cells 'talk' to each other and block out unwanted input (distractions). Dopamine also plays a big role in motivation!

- Multisensory learning should involve multiple sensory systems being engaged – this might include providing visual, auditory, olfactory, gustatory and tactile experiences and resources, coupled with movement!

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