# Proprioception Challenge

## DID YOU KNOW?.....

In our muscles, tendons, joints and inner ear we have proprioceptors, also known as stretch receptors. Their job is to relay positional information to our brains. This allows us to have a sense of our body's position – even with our eyes closed! Our brain analyses the information from the proprioceptors and provides us with a sense of body orientation and movement.

Good proprioception is especially important for pilots who fly aerobatic movements to assist them in maintaining good spatial awareness.

## ACTIVITY CHALLENGE INSTRUCTIONS

#### **Challenge 1: Find your fingertips.**

- Step 1 Close your eyes and raise both hands above your head.
- Step 2. Keep the fingers of your left hand completely still (No wiggling or waving!).
- Step 3. With your right hand quickly touch your index fingertip to your nose then as quickly as you can try to touch the tip of your thumb on your left hand (keeping your left hand in the air!). Quickly repeat the process attempting to touch each fingertip of your left hand (always returning to touch your nose in between each fingertip attempt.
- Step 4. Switch hands and try again.

#### Challenge 2. X marks the spot

- Step 1. Hold a piece of paper on your table with one hand and hold a pencil in your other hand.
- Step 2. Mark an X somewhere on the paper with the pencil.
- Step 3. Raise the pencil above your head and close your eyes.
- Step 4. With your eyes closed lower the pencil to your paper and place a dot as close to the X as you can (no peeping!)
- Step 5. Open your eyes and see how close you were to the X!

### Challenge 1

Which hand will be better at this task?

What will happen if I wiggle my hand in the air during the task?

### Challenge 2

What happens if I keep repeating the challenge with the X in the same place?

What will happen if I do the challenge with my eyes open?

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# Challenge

#### Challenge 3. Bauble Game.

- Step 1. Print out the Christmas Tree and Bauble Templates. If you haven't got a printer you can draw your own on some plain paper.
- Step 2. Cut out the bauble shapes and put a small piece of blue tack or rolled up Sellotape on the back of them.
- Step 3. Challenge yourself and your family to raise each bauble in the air and with their eyes closed try to place them correctly on the Christmas Tree.

#### **Equipment List**

- Pencil
- Paper
- Template
- Scissors
- Blue tack or Sellotape



#### Why did that happen?

In the Challenges above you are using your proprioceptors to help judge your body's position in relation to the task. However, most humans depend highly on visual cues for judging distance and position, so proprioception on it own is not always enough to give us the fine detail about our position to complete activities accurately.

When you wiggled your fingers in the air during the first challenge you might have found that you were quicker at finding your fingertips. This is because you are providing additional sensory information to your brain which helps you locate your fingers in space easier. When you repeated challenge 2 you might have found that you got more accurate each time. By looking at the position of the X repeatedly between each task you are providing your brain with extra visual information that can help you adjust your movements to be more accurate in the task.



