

Science - Year 6

Animals including Humans – Block 6AH

The Art of being Human

Session 1

Resource pack

Blood Smoothies

Ingredients

- **300g raspberries or strawberries**
- **A few small white marshmallows**
- **1 teaspoon of sprinkles**
- **400ml pineapple juice**

Method

- 1. Put the berries into the jug first, followed by the marshmallows and sprinkles, then top up with pineapple juice**
- 2. Blend all ingredients and enjoy!**

You will also be given additional ingredients of either:

- Apples
- Bananas
- Apples & bananas
- Orange pieces

And a '+' or '-' categorisation

Smoothie ingredients with component representations (teacher reference)

- **300g raspberries or strawberries (red blood cells)**
- **A few small white marshmallows (white blood cells) (vegetarian marshmallows can be sourced via the internet or shops such as Holland & Barrett)**
- **1 teaspoon of sprinkles (platelets)**
- **400ml pineapple juice (plasma)**

Rules for smoothie 'transfusions' or 'top-ups':

Donor

Recipient

Type	Orange-	Orange+	Banana-	Banana+	Apple-	Apple+	Apple/ Banana-	Apple/ Banana+
Apple/ Banana+								
Apple/ Banana-								
Apple+								
Apple-								
Banana+								
Banana-								
Orange+								
Orange-								

Blood donor/recipient chart

		Donor							
Recipient	Type	O-	O+	B-	B+	A-	A+	AB-	AB+
	AB+								
	AB-								
	A+								
	A-								
	B+								
	B-								
	O+								
	O-								

Blood component description and functions cards

1.

- *I am red in colour – I am the reason blood is red*
- *I transport oxygen around the body and remove carbon dioxide*
- *I am also called an erythrocyte*
- *I am the most common type of cell found in blood*
- *I am doughnut shaped (without an actual hole) and very flexible*
- *I don't have a nucleus*
- *2-3 million of me are made every second in bone marrow*
- *I work for about 120 days then head to the spleen or liver for recycling*

2.

- *I fight off infection and foreign bodies – sometimes causing inflammation*
- *I am white in colour*
- *I only make up 0.5% of blood, but am very important*
- *I clear debris and help healing when you cut yourself*
- *I am also called a leukocyte*
- *I have a rough texture and am very flexible*
- *I have a nucleus inside me*

3.

- *I make your blood clot when you cut yourself*
- *I make up about 0.5% of your blood*
- *If I am not called on to make a clot within 9 days, the spleen removes me!*
- *I am about 20% of the diameter of red blood cells.*
- *I am colourless and don't have a nucleus*
- *I am a fragment of a cell*

4.

- *I am the gloopy liquid part of blood*
- *I make up about 55% of blood*
- *I am mainly made up of water, but also contain nutrients, hormones, antibodies, clotting factors, and large proteins*
- *My large proteins can carry things that don't dissolve in water, like fat, hormones and some vitamins*
- *I move nutrients across the body*
- *I can transport some carbon dioxide for removal from the body*
- *I also scoop up other waste products to get rid of*

For teachers:

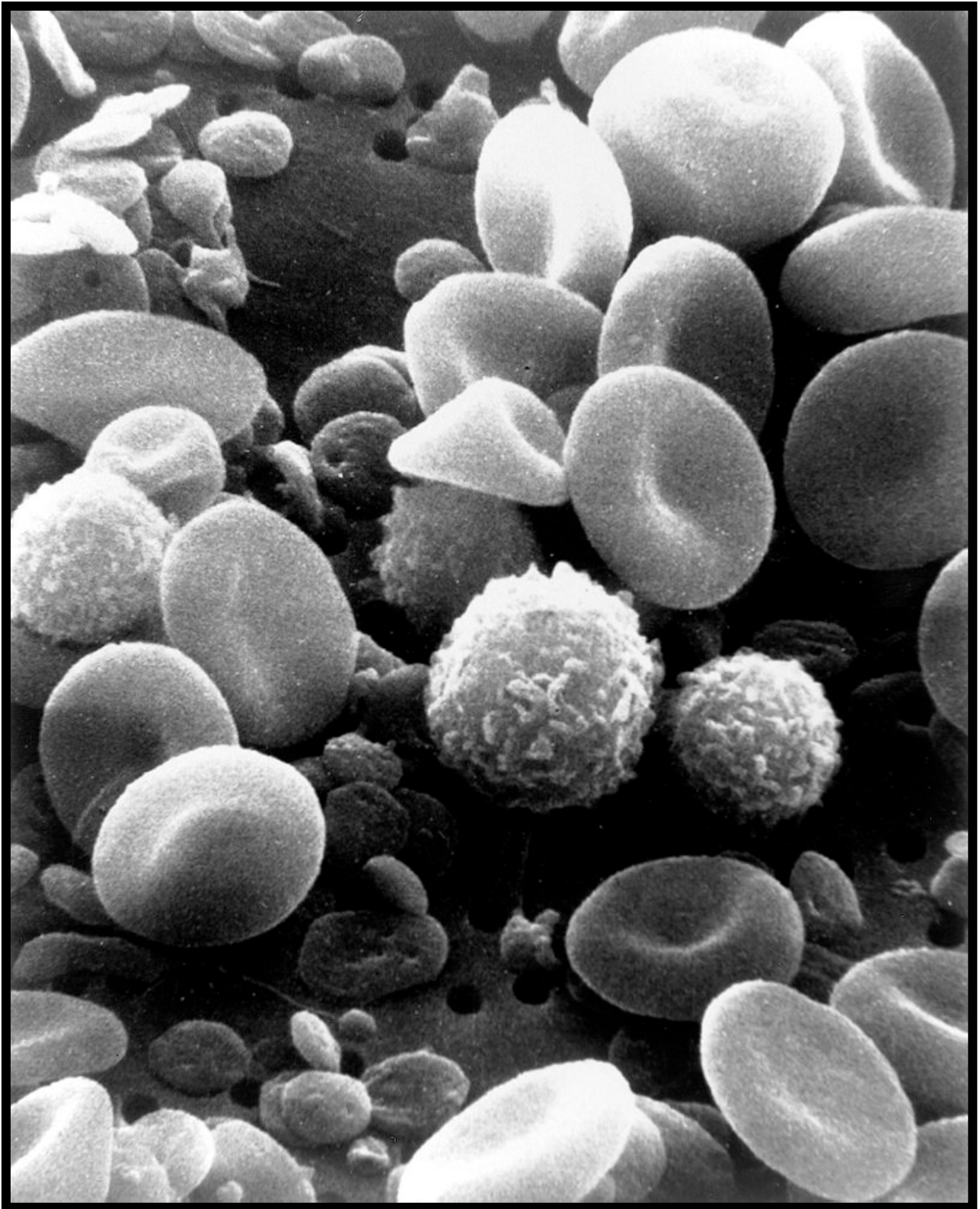
1 = Red Blood Cells

2 = White Blood Cells

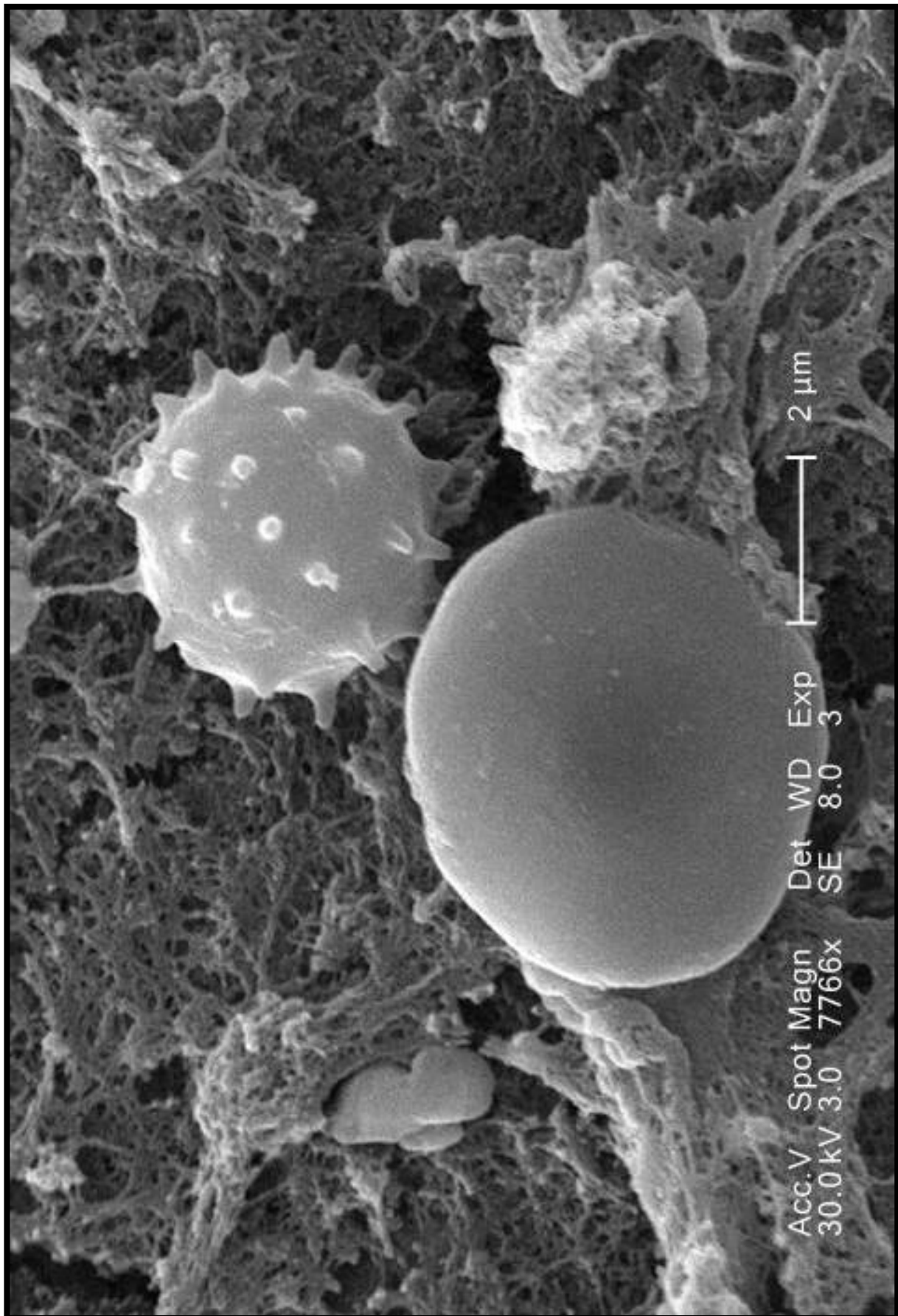
3 = Platelets

4 = Plasma

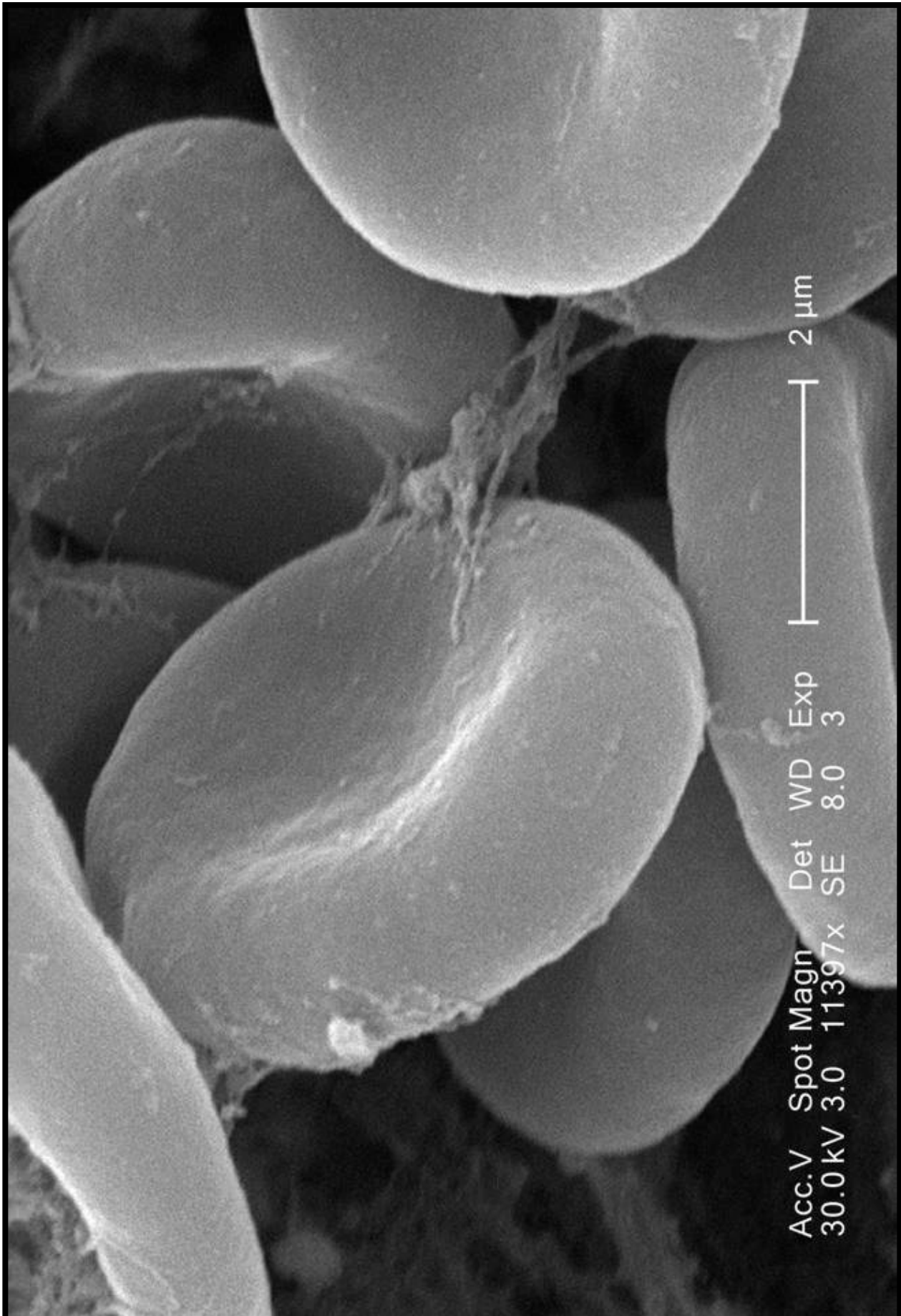
Blood as seen under an electron microscope (all components)



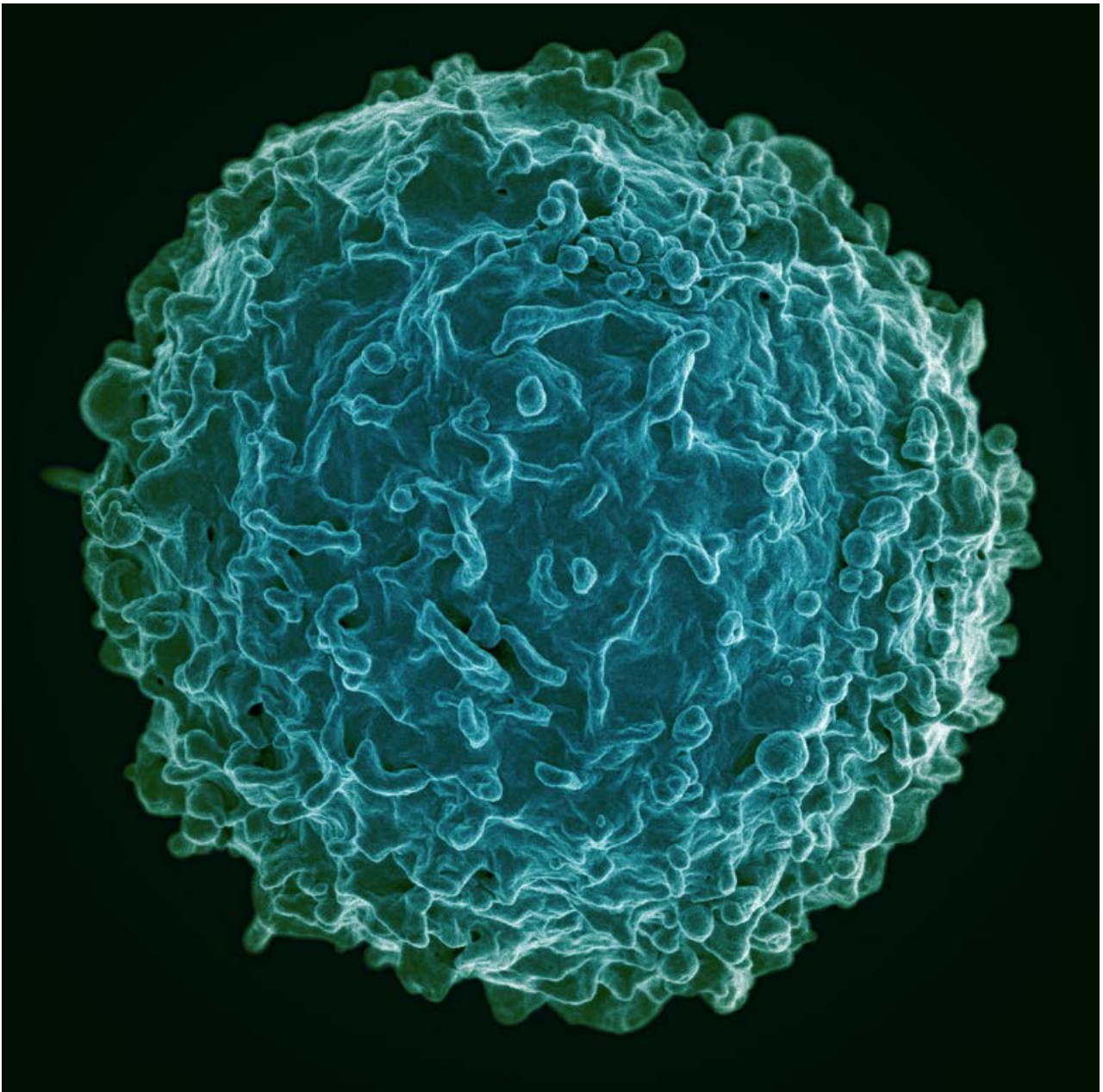
Red and white blood cells under an electron microscope



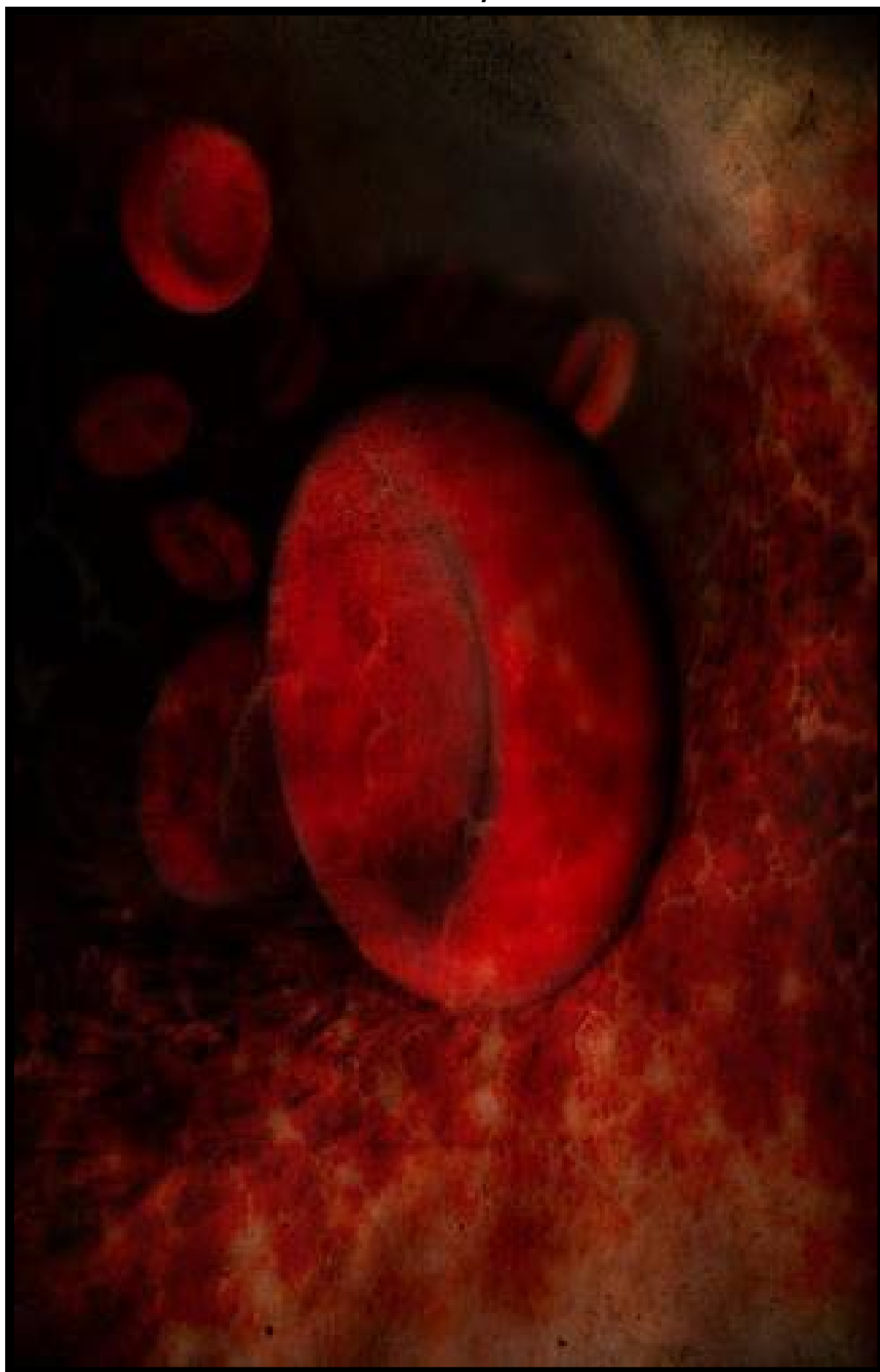
Red blood cells under an electron microscope



**White blood cell under an electron microscope
(stained blue – colourless in true form)**



Red blood cell by Andrew Mason



Sample Haiku for white blood cells

Haiku syllables

First line: 5

Second line: 7

Third line: 5

Fighting infection

Inflammation to protect

Helping with healing

Fascinating facts about blood

1. Is blood all the same colour? (Not exactly! Oxygenated blood is bright red and deoxygenated blood is dark red)
2. How long does a red blood cell live for? (4 months)
3. How many blood types do you think cows have? (800)
4. How much blood do you have inside you at any one time? (about 7% of your total weight, so an average adult has about 9 pints or 5 litres)
5. How much blood do blood donors give at any one time? (500ml or 10% of their blood)
6. How many miles/kilometres of blood vessels does a person have? (59,962 miles/96,500km – over 2 times round the world!)
7. How many blood cells does a drop of blood contain? (Millions of red blood cells & 7 to 25 thousand white blood cells (increases if you have a bad infection.)

Glossary

- RBC – red blood cells
- WBC – white blood cells
- CO₂ - Carbon dioxide