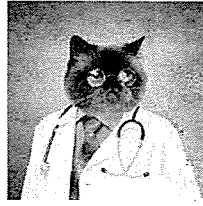


## 9 SCIENCE BIOLOGY ASSIGNMENT

Name: TEACHER  
Form: 6PY



Teacher: \_\_\_\_\_

Due date: \_\_\_\_\_

**Aim:** This assignment will allow you to find out about touch receptors and how the nervous system works in the human body.

### IMPORTANT INFORMATION

#### Plagiarism

- You must write in your own words not copy sentences word for word from another student or another source.
- Plagiarising = instant zero on assignment and you will have to re-do it.

#### How to reference a book:

Tsutaya, K. (2011). Crafting with Cat Hair: Cute Handicrafts to Make with Your Cat. Philadelphia: Quirk Books.

Author's last name, first letter of first name. (Year of publication). Title of book. Place of publication: name of publisher.

#### How to reference a web site:

Rice, C. (2013). Cute cats could be key to learning new languages. Retrieved February 8, 2014 from [www.bbc.co.uk/news/technology-25103362](http://www.bbc.co.uk/news/technology-25103362)

Author's last name, first letter of first name. (Year of publication). Title of website. Date you retrieved the information, website

#### Assessment policy

Have sick note/legitimate reason from parent = new negotiated due date.

Assignment not submitted on due date and no sick note from parents = -20% mark

Assignment not submitted on new negotiated due date = -40% mark

+ Letter home to parents

+ Must attend academic completion to complete assignment

**OR**

Submit assignment to student services before academic completion date and academic completion not necessary.

Academic completion not attended = zero on assignment + Saturday detention

If you know that you cannot submit your assignment on the due date, let your teacher know **BEFORE** the due date (email them if you are not in school) or just email them your assignment the night before.

## PART ONE: BACKGROUND RESEARCH

1. **Explain** what touch receptors are and what they do.

(2 marks)

(Minimum of two sentences)

(1)  
Nerve cells that tell the brain about tactile sensations. (1)

Found in epidermis of skin.

2. **State** one area of the body where you would find a high concentration of touch receptors and **explain** why this is the case.

(2 marks)

(Minimum of two sentences).

eg) Hand (0.5) - It is used to touch what (1.5)  
is around you so needs to be  
very sensitive as a way to  
protect the body.

eg) Fingertips

3. **State** one area of the body where you would find a low concentration of touch receptors and **explain** why this is the case.

(2 marks)

(Minimum of two sentences).

eg) back (0.5) - not using area to explore (1.5)  
surroundings.  
ect.

4. List three stimuli that your touch receptors can detect.

(2 marks)

Hot surface, sharp surface, cold surface  
pressure on skin, vibration  
pain, rough, tickle

-0.5 for each missing  
need 3 in total

5. There are two main groups of touch receptors. List them and state what each type detects.

(2 marks)

- <sup>(0.5)</sup>Mechanoreceptors: <sup>(0.5)</sup>sensations of pushing, pulling or movement.

- <sup>(0.5)</sup>Thermoreceptors: <sup>(0.5)</sup>sensations of temperature.

References (minimum two references)

## PART TWO: EXPERIMENT

**Title:** \_\_\_\_\_

**Aim:** To investigate what parts of the body have a greater concentration of touch receptors.

Note: when the subject feels two pin pricks from two pins placed 2mm apart, two nerves have been stimulated. This means that the receptors are no more than 2mm apart. Feeling only one pin prick indicates fewer receptors, spaced more widely.

### Hypothesis

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### Materials

2x pins	_____
Ruler	_____

### Independent variable:

Area of the body

### Dependent variable:

Distance between pins when two pricks are felt.

### Two controlled variables:

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## Method

1. Student held out hand.
2. Other student holds ruler on hand.
3. Third student puts two pins on hand & moves pins apart mm by millimetre until test subject feels two pricks
4. The distance is recorded.
- 5.

Results: Table (show results taken from students in group).

Distance between pins when pricks are felt (mm)				
Area of body	student 1 (mm)	student 2 (mm)	student 3 (mm)	Average distance (mm)
Back of hand				
Top of foot				
Back of neck				
Arm				
Fingertip				

example

**Graph** (graph the average results from your group on a piece of graph paper and attach to the booklet).

**Discussion** (describe one mistake/error that occurred, explain how this affected the results and how it could be avoided next time).

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface. There is no handwriting or other markings on the paper.

1. **State** the areas of the body you tested that had the greatest concentration of touch receptors. (1 mark)

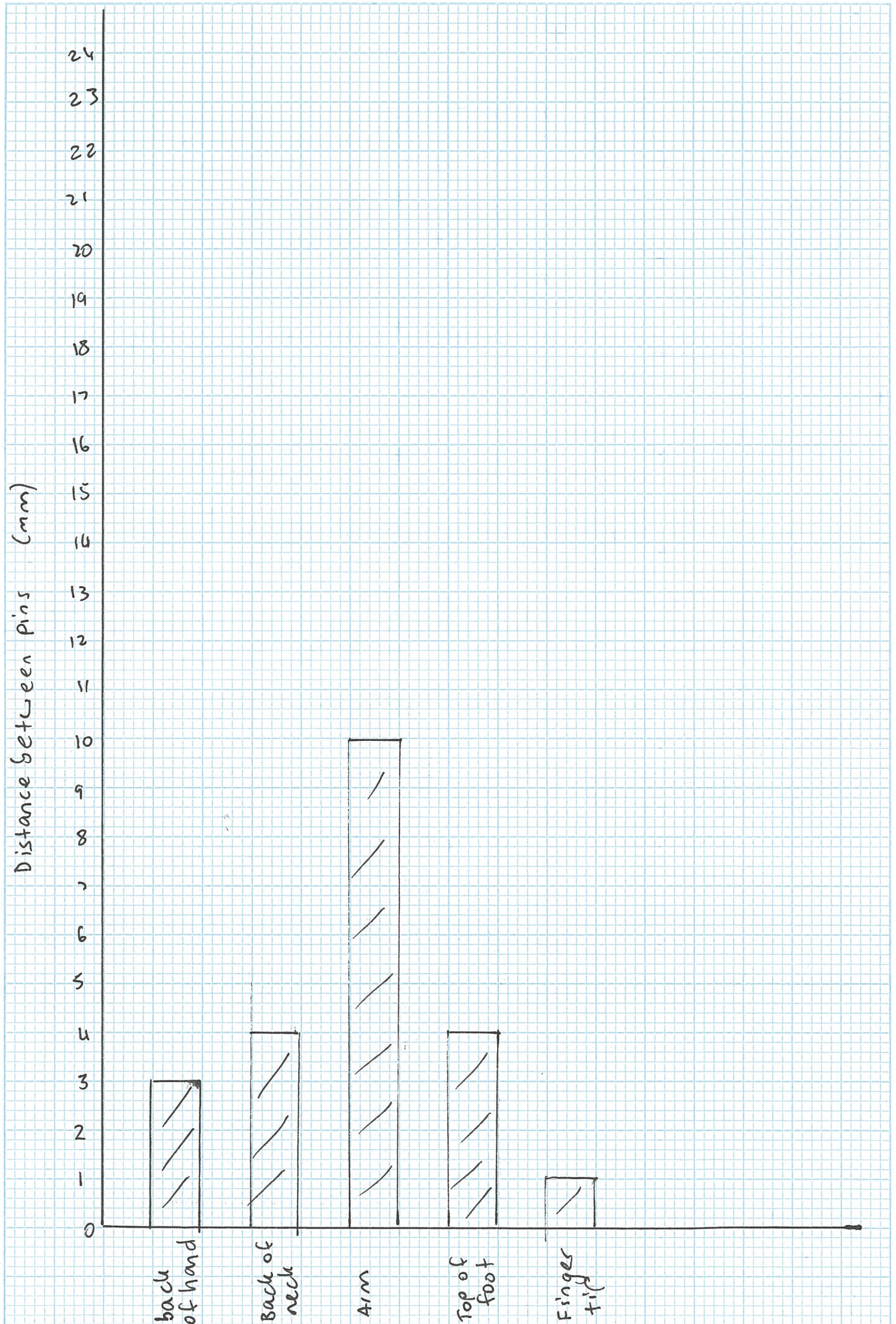
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2. **State** the area of the body you tested that had the lowest concentration of touch receptors. (1 mark)

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# Distance between pins versus area of body





## Conclusion

(State general result, whether hypothesis was proven or disproven and use scientific reasons to explain why you got the results you did **or** why you would have expected different results).

(Minimum of 5 sentences)

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.

Name: \_\_\_\_\_

### MARKING KEY

Content	Description		Your mark
Background research	Questions	10	
Referencing	Minimum of 2 references. Minimum 2 types of sources. Referenced in correct format as shown in student diary	1 1 1	
Title	Explains what the investigation is about - NOT 'Biology Investigation'	1	
Materials	Listed all materials used. Is specific - has number of items used. Eg 5g of salt	0.5 0.5	
Hypothesis	Clear statement predicting one variable changing. Does not use 'I', 'we' etc.	1 1	
Independent Variable	Listed the independent variable.	1	
Dependent Variable	Listed the dependent variable.	1	
Controlled Variables	Listed at least two controlled variables.	2	
Method	Is written in past tense. Is written in numbered step-by-step. Includes all the steps completed in experiment.	1 1 1	
Results table	Drawn neatly in pencil and using a ruler. Includes the headings and units of measurement. Includes all the data collected during the experiment.	1 1 1	
Graph		5	
Discussion	Describes at least one mistake/error that occurred. Explains how this mistake/error affected the results. Explains how this mistake/error could be avoided.	1 1 1	
Discussion Questions		2	
Conclusion	One sentence stating the result of the experiment. One sentence stating whether the hypothesis was supported or disproved. Scientific reasons to explain results.	1 1 3	
Presentation	Correct spelling, grammar, full sentences. Written neatly or typed up neatly.	1 1	
<b>Total mark</b>		44	

Mark as percentage %

Teacher's comments:

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