

# Can you spot the difference?

Do you like playing "spot the difference" between two images? We hope so because this is exactly what this quiz will be! You will be asked to detect small differences in colour between images. The better you are, the more points you will get! You will be able to see your score at the end of the survey. The survey takes about 15min to complete. Please do it on a computer or tablet, not on a phone, and maximize the browser to ensure the pictures are all visible at once.

Before we get to the main section of this quiz, you will have the opportunity to read the participant information. We will need your consent to participate in this study, if you don't agree with the conditions of this study, you can just close this website.

## Participant Information

**Study Title:** Spot the Difference - the Eidolon Edition

**Researchers:** Christoph Witzel (supervisor), Haden Dewis (student)

**University email:** [C.Witzel@soton.ac.uk](mailto:C.Witzel@soton.ac.uk), [hsdd1g18@soton.ac.uk](mailto:hsdd1g18@soton.ac.uk)

**ID of ethical approval (ERGO number):** 64292

**Version and date:** Version1, 27/03/21

### **What is the research about?**

My name is Haden Dewis and I am an undergraduate Psychology student in my final year at the University of Southampton in the United Kingdom. I am inviting you to participate in a study on the perception of object colours.

This study was approved by the Faculty Research Ethics Committee (FREC) at the University of Southampton (ERGO Number: 64292).

### **What will happen to me if I take part?**

This study involves completing an anonymous questionnaire which should take approximately 15-20 minutes of your time. If you are happy to complete this survey, you will need to tick (check) the box below to show your consent. As this survey is anonymous, the research team will not be able to know whether you have participated, or what answers you provided.

### **Why have I been asked to participate?**

Anybody can participate in this study, and there are no expectations on participants' background. I am aiming to recruit around 400 participants for this study.

### **What information will be collected?**

The questions in this survey ask for some demographic information (gender, age, and if you have colour deficiency). In the main part, you will be asked to indicate which of four object images differ in colour from the other three. Accuracy and timing of your responses will be recorded, and you will be asked to indicate the confidence about your responses.

### **Are there any benefits in my taking part?**

If you decide to take part in this study, you will not receive any direct benefits; however, your participation will contribute to knowledge on colour perception.

### **Are there any risks involved?**

It is expected that taking part in this study will not cause you any psychological discomfort and/or distress, however, should you feel uncomfortable you can leave the study at any time or contact the following resources for support: Christoph Witzel, [C.Witzel@soton.ac.uk](mailto:C.Witzel@soton.ac.uk)

### **What will happen to the information collected?**

All information collected for this study will be stored securely on a password protected computer and backed up on a secure server. In addition, all data will be pooled and only compiled into data summaries or summary reports. Only the researcher and their supervisor will have access to this information.

Deidentified results of this study will be reported as part of a larger research program, in academic conferences and/or journals, so you'll remain anonymous in all stages of the research. If you wish to receive a summary of the research findings, please contact Christoph Witzel at [c.witzel@soton.ac.uk](mailto:c.witzel@soton.ac.uk); the research team will email you the summary report once it's ready.

The University of Southampton conducts research to the highest standards of ethics and research integrity. In accordance with our Research Data Management Policy, data will be held for 10 years after the study has finished when it will be securely destroyed. If results are published in scientific journals, the anonymous data will be made publicly available in a scientific data repository.

### **What happens if there is a problem?**

If you are unhappy about any aspect of this study and would like to make a formal complaint, you can contact the Head of Research Integrity and Governance, University of Southampton, on the following contact details: Email: [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk), phone: + 44 2380 595058.

Please quote the Ethics/ERGO number above. Please note that by making a complaint you might be no longer anonymous.

More information on your rights as a study participant is available via this link:

<https://www.southampton.ac.uk/about/governance/participant-information.page>

For more information on this study, please contact Christoph Witzel at

[c.witzel@soton.ac.uk](mailto:c.witzel@soton.ac.uk) ([homepage here](#)). You may also contact him after you've finished the study for questions, concerns, and feedback.

**Thank you for reading this information sheet and considering taking part in this research.**

**Please check below before starting the experiment. Otherwise you can simply close the website.**

- Please tick (check) this box to indicate that you have read and understood information on this form, are aged 18 or over and agree to take part in this survey.

Warm Up

## **Warm-up questions**

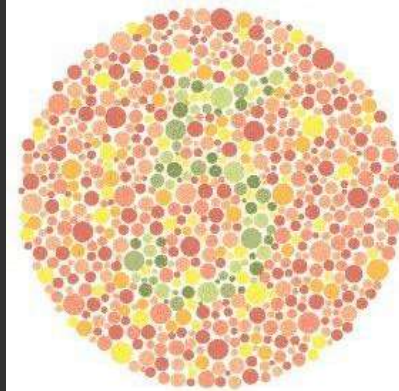
**What is your gender?**

- Male  
 Female  
 Other

What is your age?

**Have you any known colour deficiencies in your vision?**

Colour deficiency is often tested using images like the coloured one below showing a number 5.



- I don't know
- Yes, I have colour vision deficiencies
- No, as shown by a colour vision test.
- No, but never tested

**Please note...**

...that this task will be particularly difficult if you have any colour deficiencies. It would be helpful for us to obtain your data, but it may also be frustrating for you if you cannot see the differences. So, feel free to opt out at this point by closing the window. If you choose to continue, that is also fine and it does not matter if you can't always see the difference.

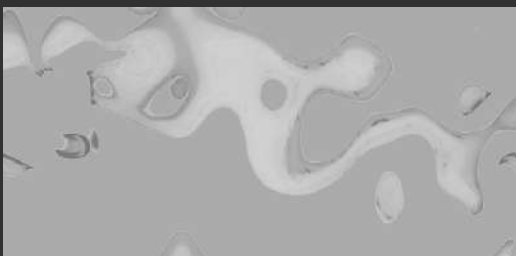
Memory Colour - Banana

**PURE GREY**

Before we start with the main part, let's see how pure grey looks to you.

### Which of those "things" looks totally grey?

One of these two structures (or "things") looks purely grey, whilst the other may appear to have colour mixed in. If neither looks purely grey, choose the most grey one.

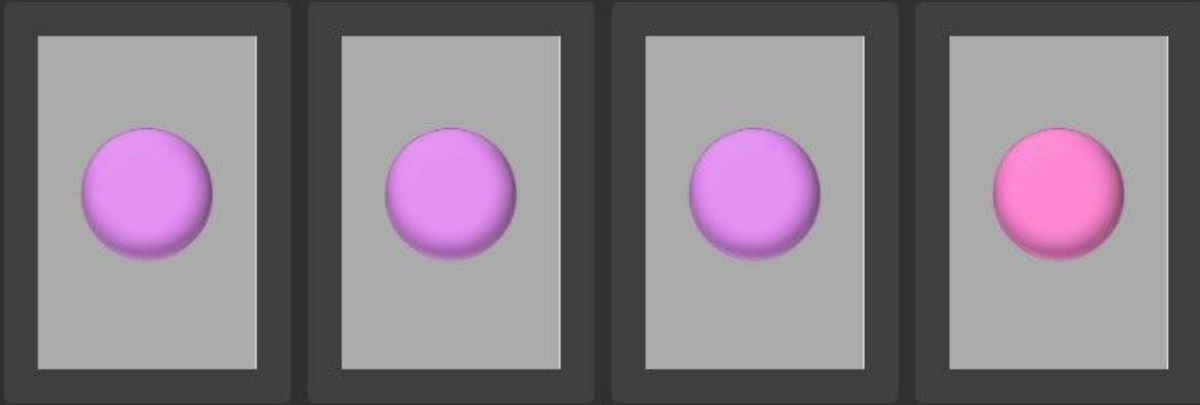


Instructions

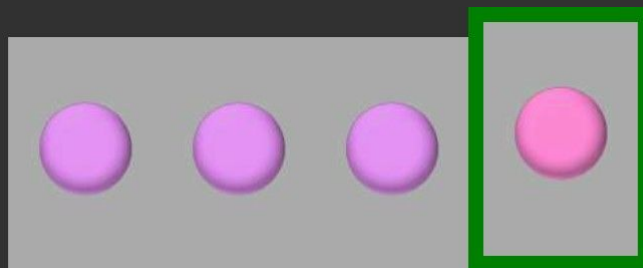
## INSTRUCTIONS

On the following slides you will be presented with four images, one of these images will be different from the other three. All you need to do is select the image that you believe to be different from the other three by clicking it with your mouse, after this, use the slider to select how confident you feel about the answer you gave. You can now practice this with the following three practice trials!

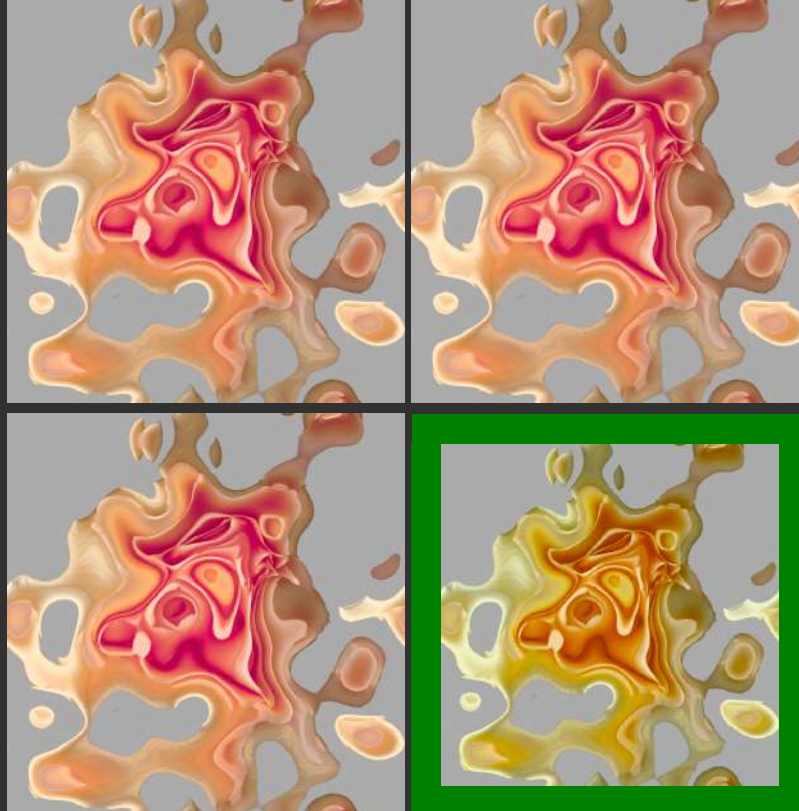
**Please select the image that you believe is different from the others**



**The correct answer is: the rightmost disk**



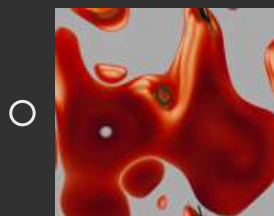
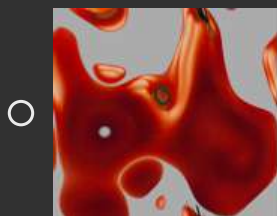
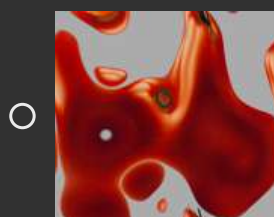




## Just to make sure...

...yet another practice trial: Select the image that you think is different and rate how confident you are in your answer!

**Please select the image that you believe is different from the others**

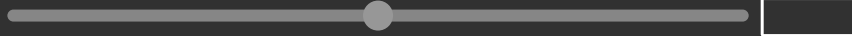


Please use the scale below to select how confident you feel about the answer you gave

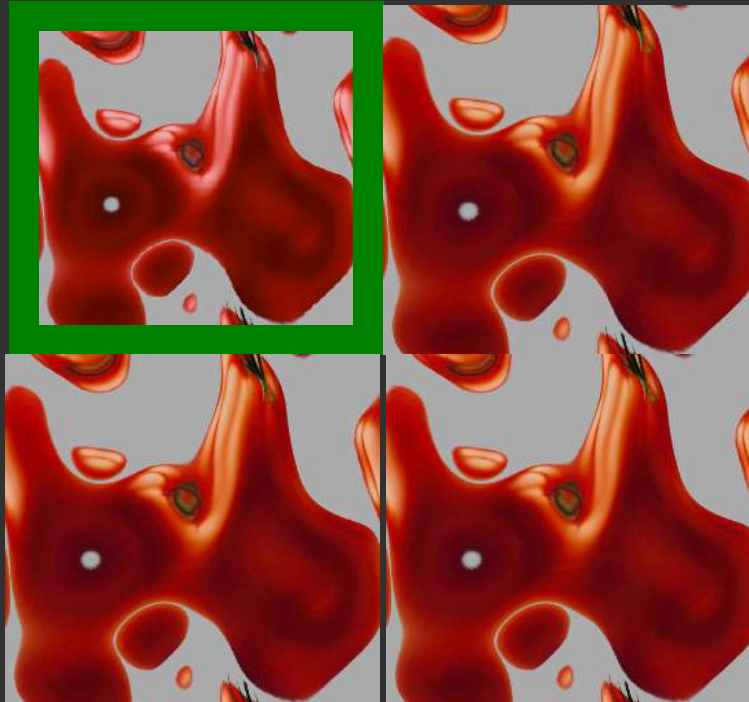
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



This is the correct answer: Top left(green frame)



Main Part

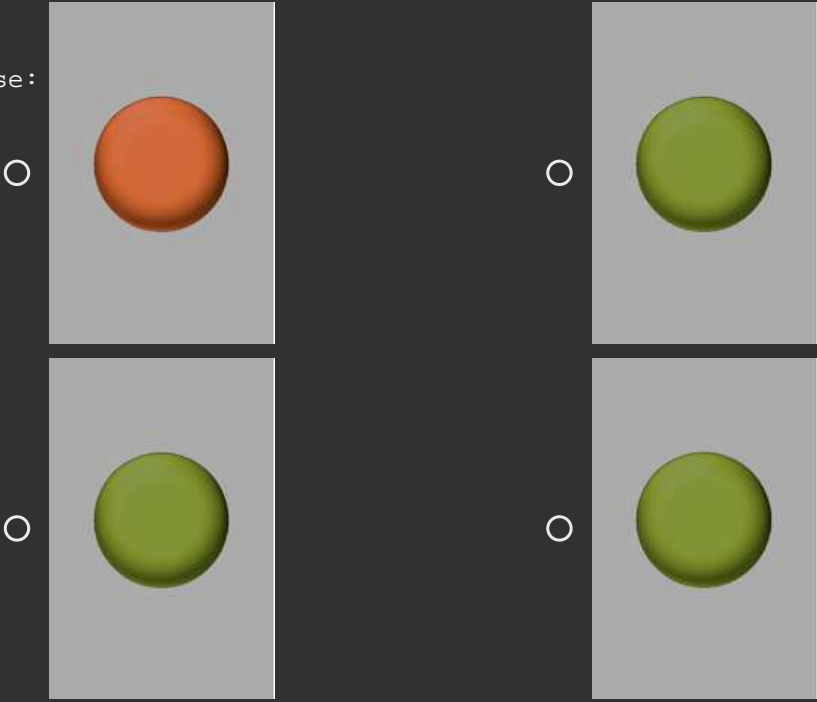
**START**

Ok, now its getting serious! Please try to answer as quickly as you can while making sure you choose the correct one ... well, if you can spot the odd one at all; some of these trials are really difficult! Anyway, have fun and good luck!

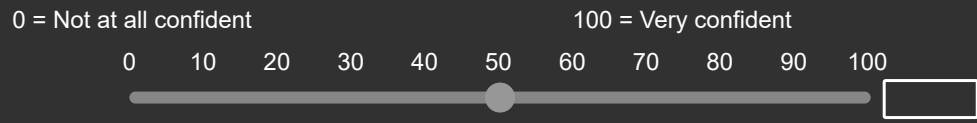


Please select the image that you believe is different from the others

Correct Response:  
Top Left

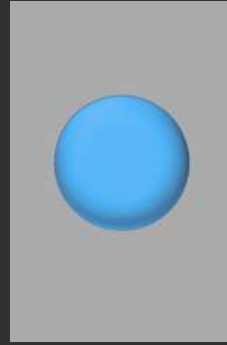


Please use the scale below to select how confident you feel about the answer you gave



Please select the image that you believe is different from the others

Correct Response:  
Top Left

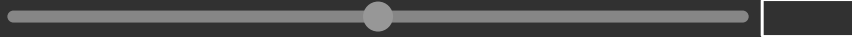


Please use the scale below to select how confident you feel about the answer you gave

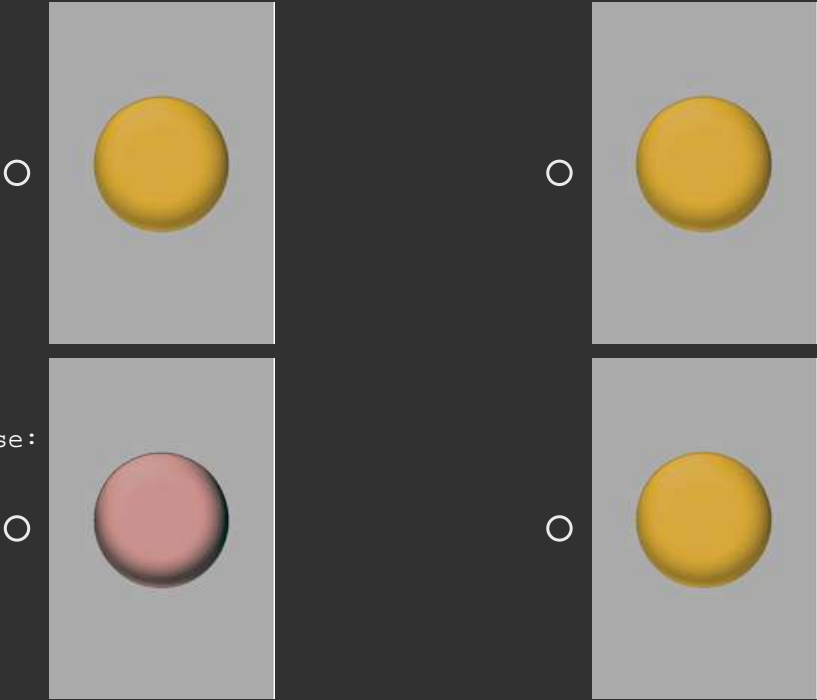
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

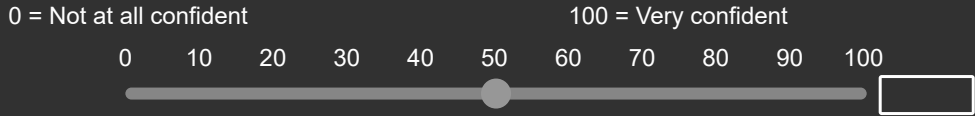


Please select the image that you believe is different from the others

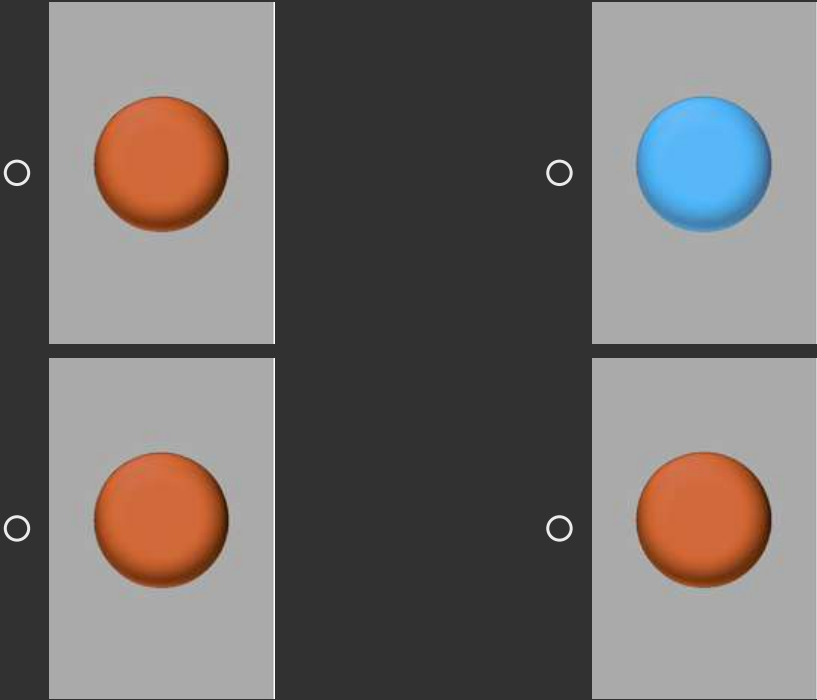


Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

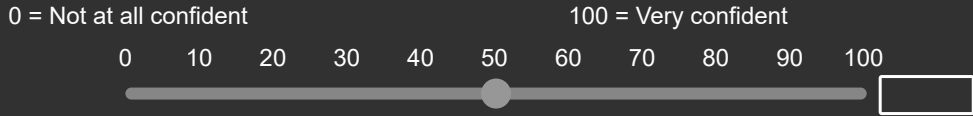


Please select the image that you believe is different from the others

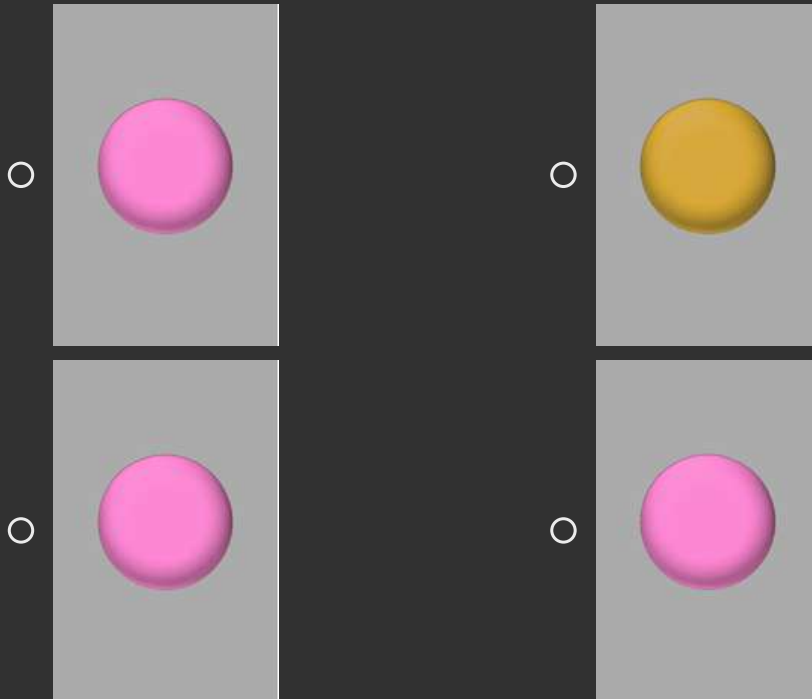


Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

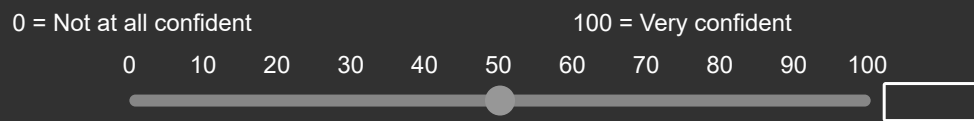


Please select the image that you believe is different from the others



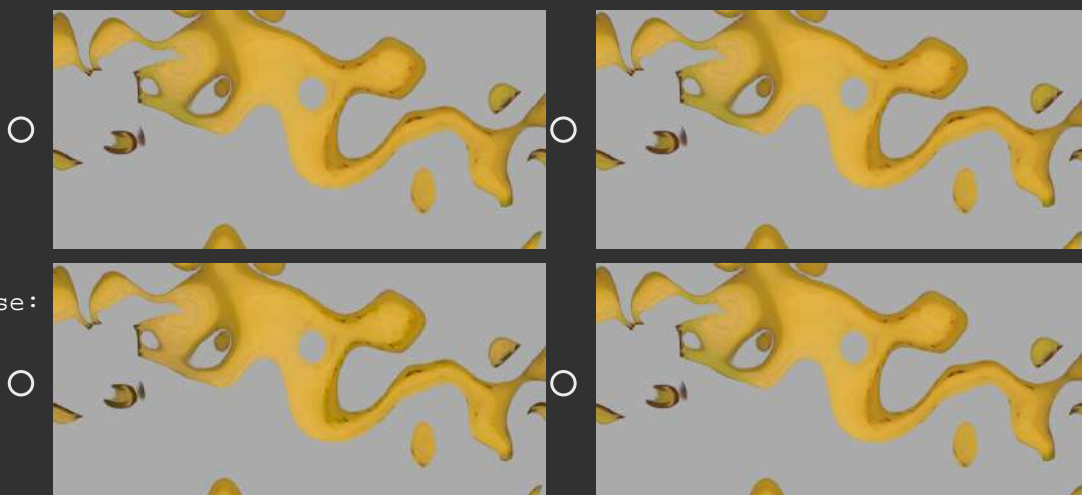
Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave



Banana - One Hue

Please select the image that you believe is different from the others



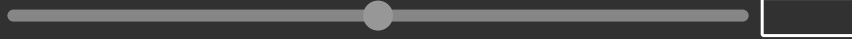
Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

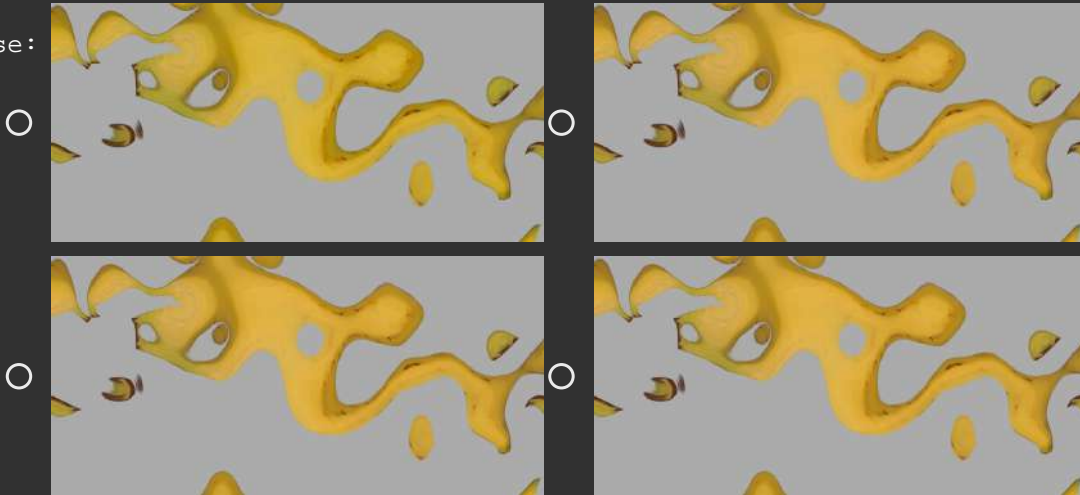
0 10 20 30 40 50 60 70 80 90 100



Banana - Rotated Plus

Please select the image that you believe is different from the others

Correct Response:  
Top Left

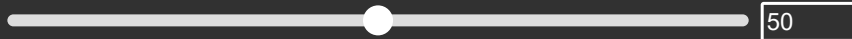


Please use the scale below to select how confident you feel about the answer you gave

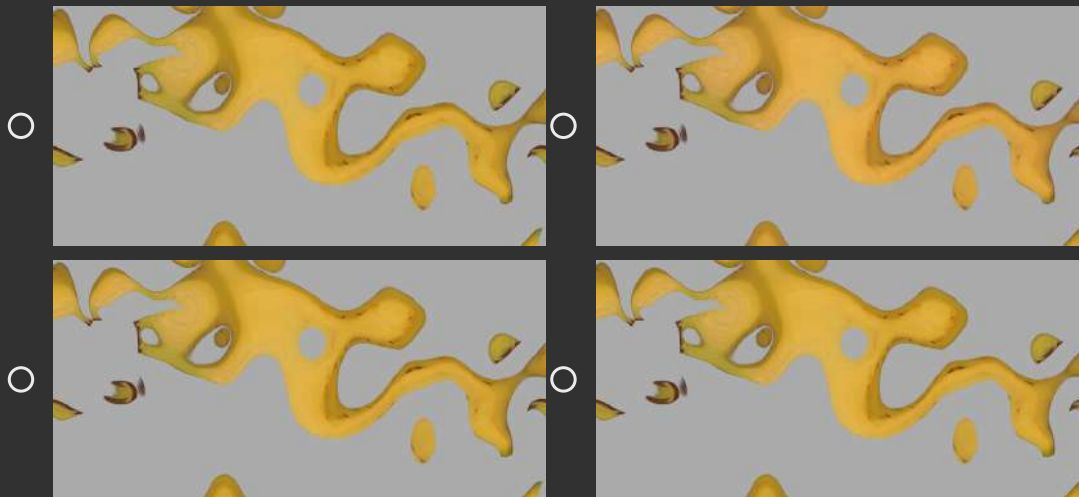
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

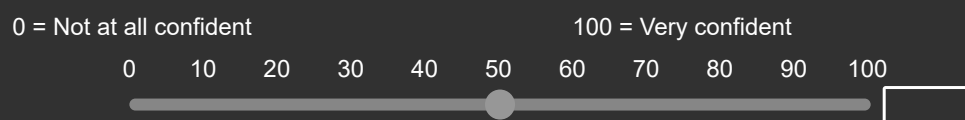


Please select the image that you believe is different from the others

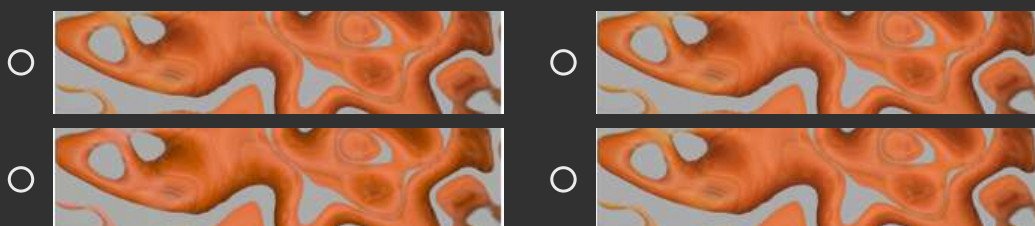


Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

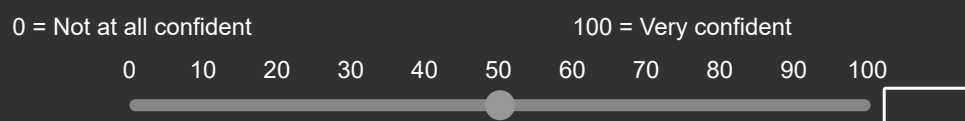


Please select the image that you believe is different from the others

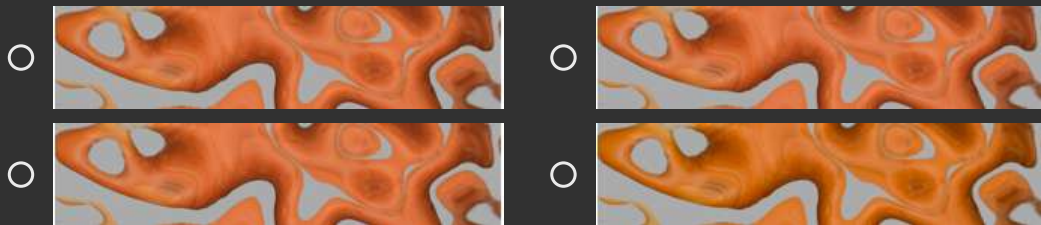


Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

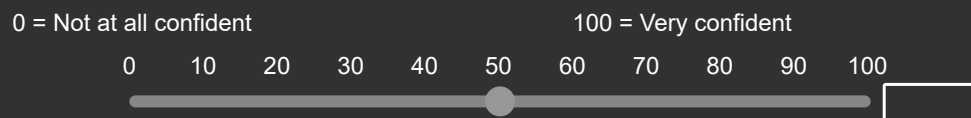


Please select the image that you believe is different from the others

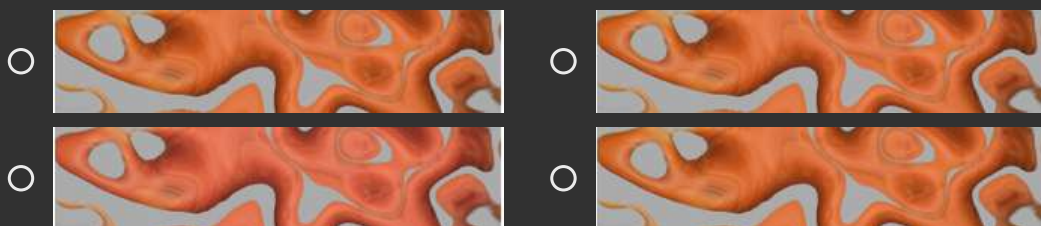


Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

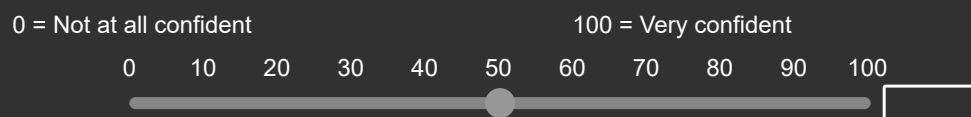


Please select the image that you believe is different from the others



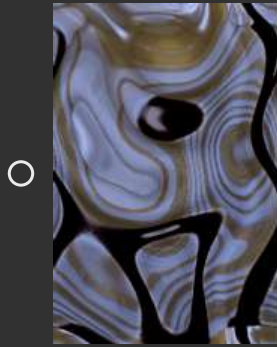
Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave





Please select the image that you believe is different from the others



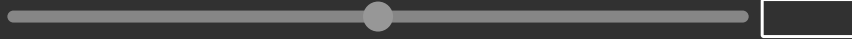
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

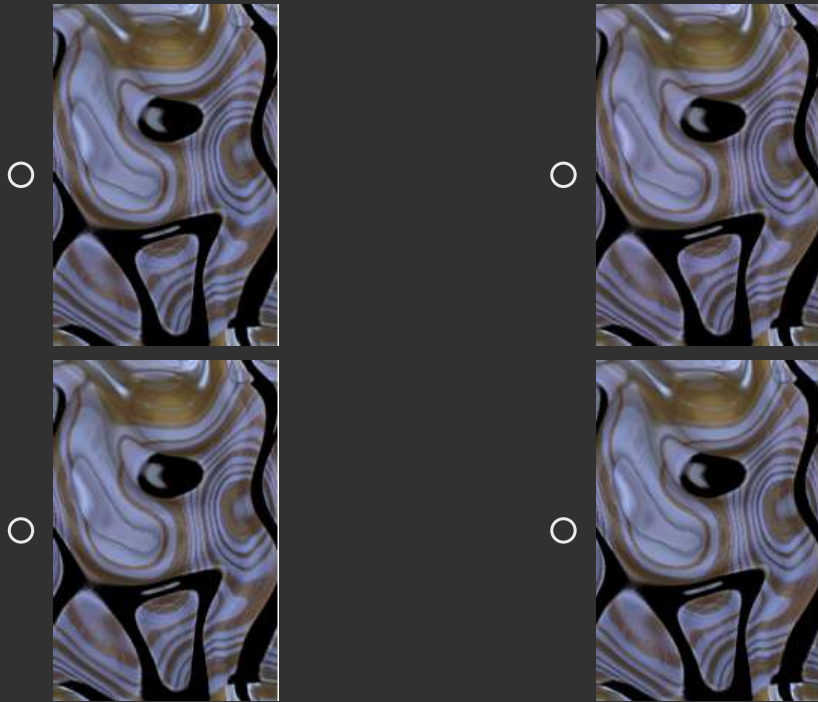
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others



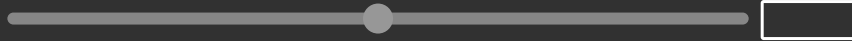
Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

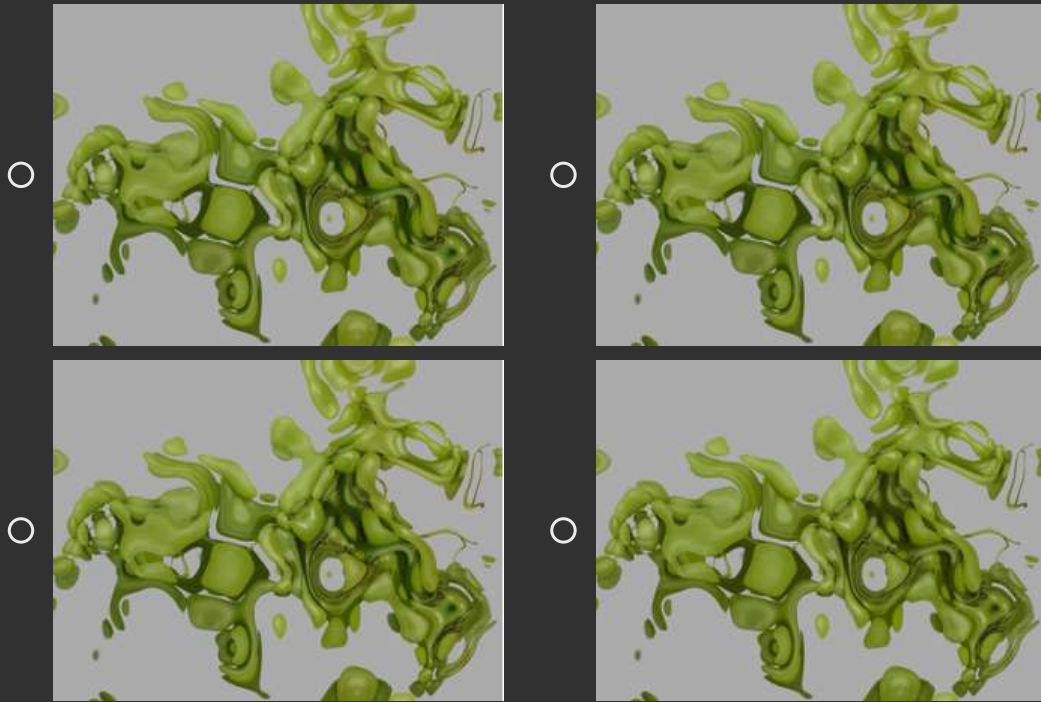
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100





Please select the image that you believe is different from the others



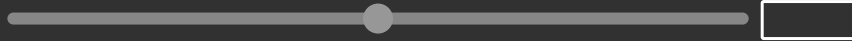
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

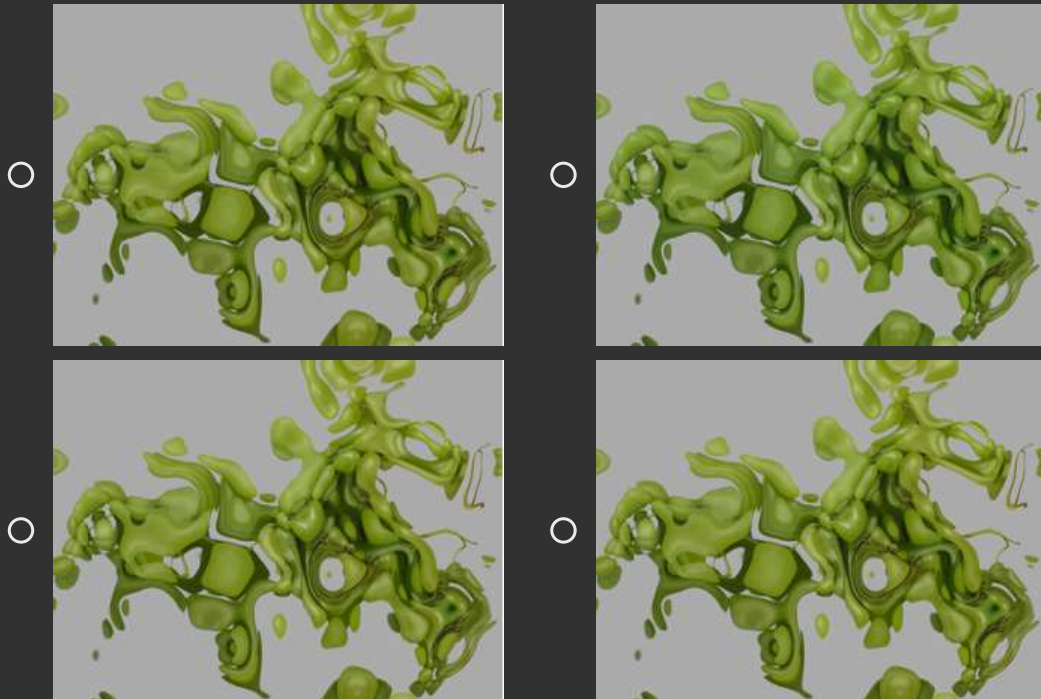
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others



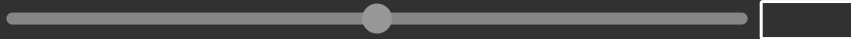
Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

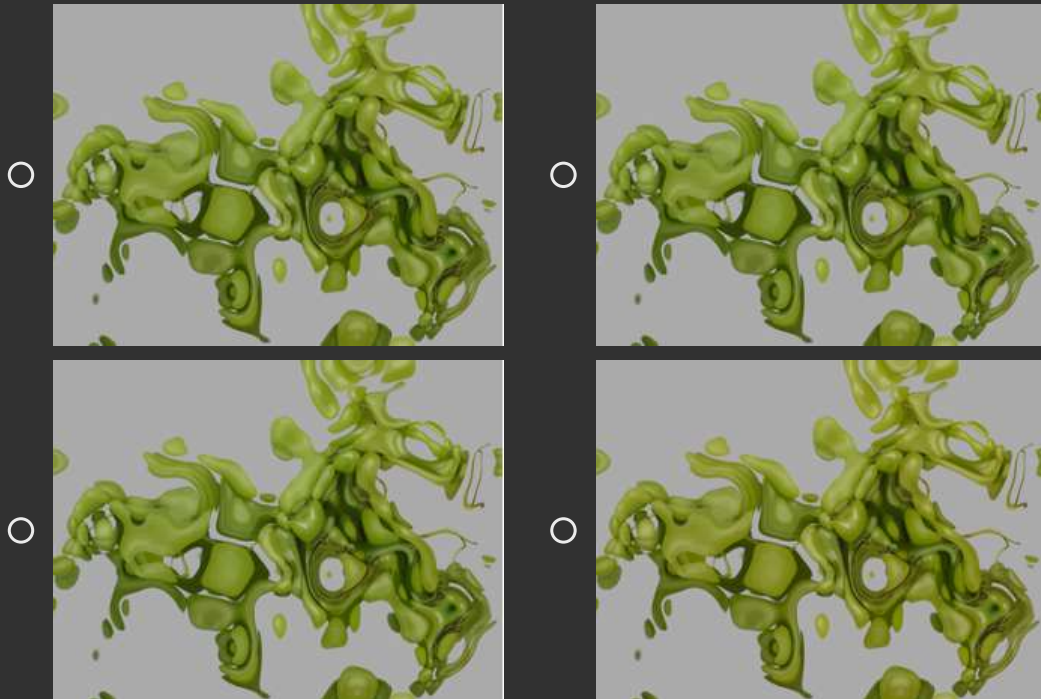
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others



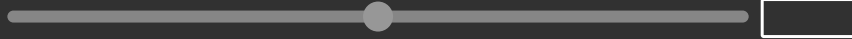
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

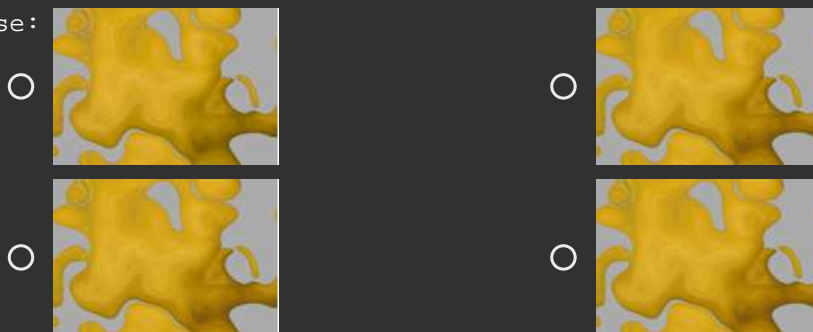
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others

Correct Response:  
Top Left



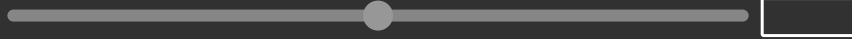


Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

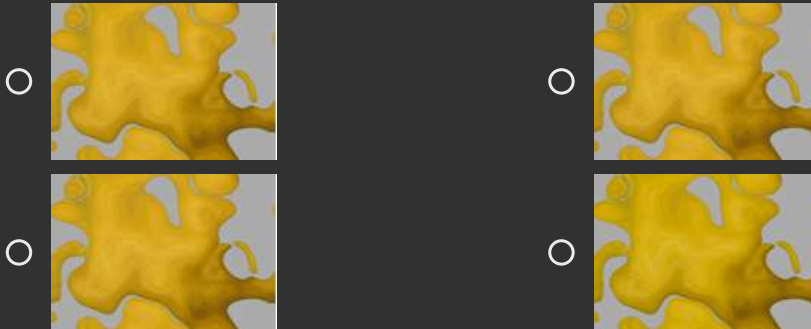
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Lemon - Rotated Plus

Please select the image that you believe is different from the others



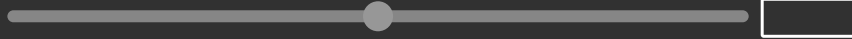
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

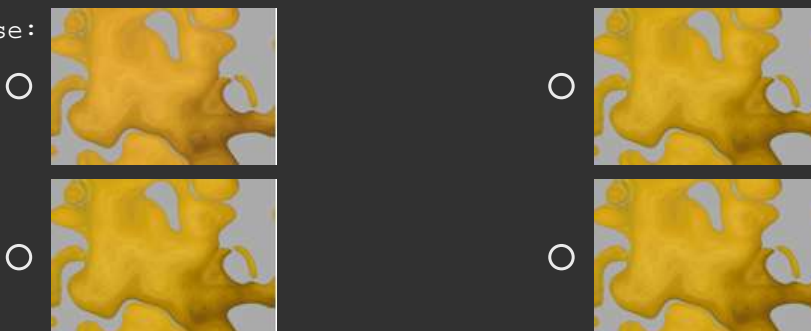
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Lemon - Rotated Minus

Please select the image that you believe is different from the others



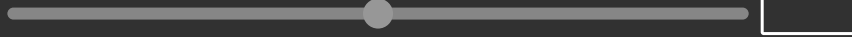
Correct Response:  
Top Left

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

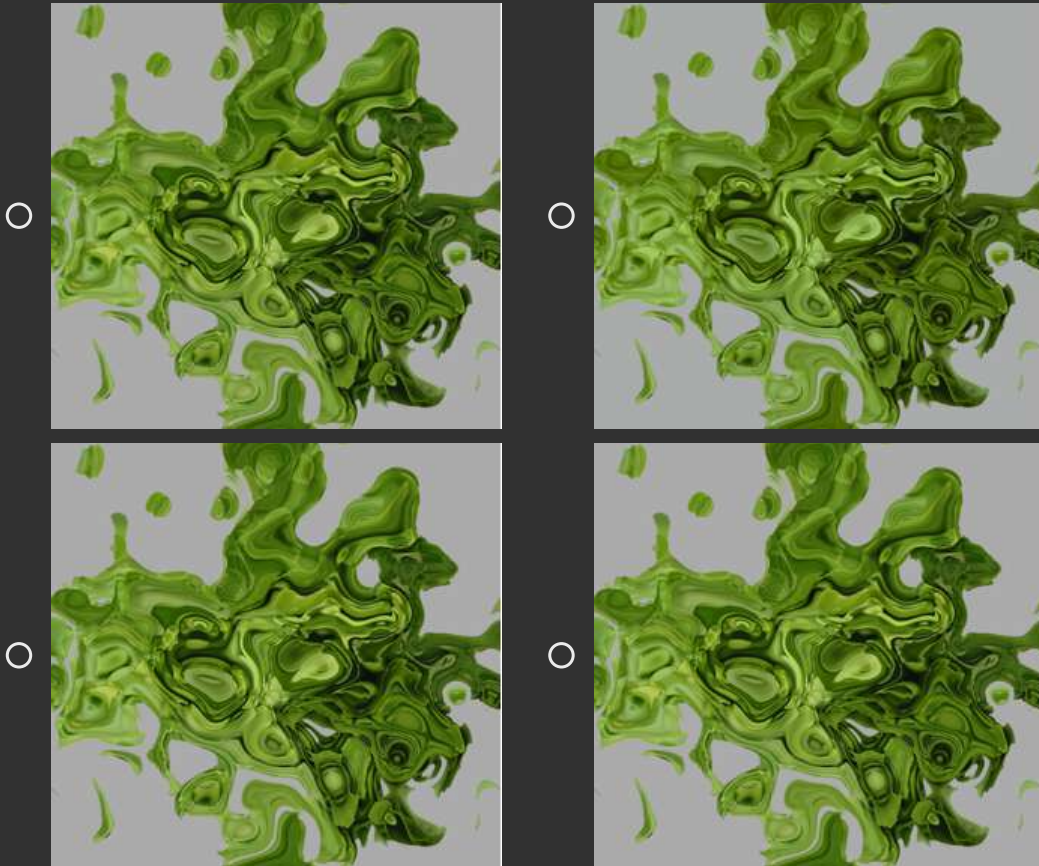
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Lettuce - One Hue

Please select the image that you believe is different from the others



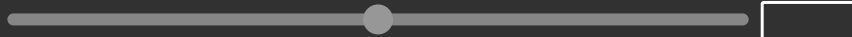
Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

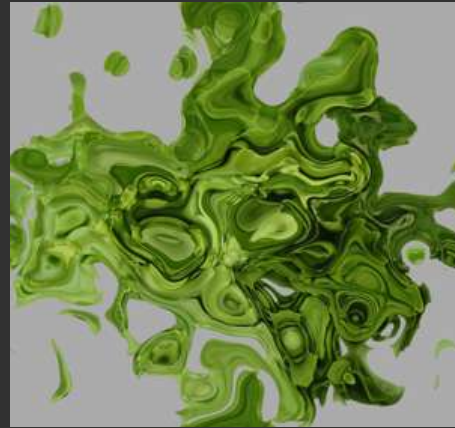
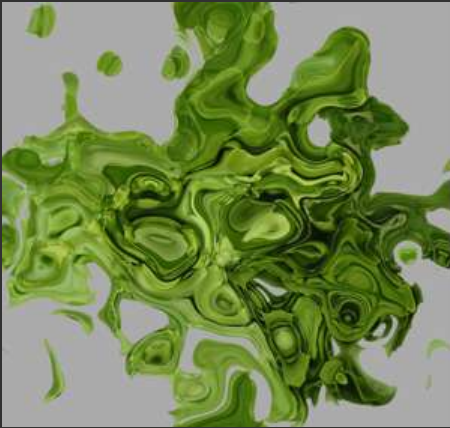
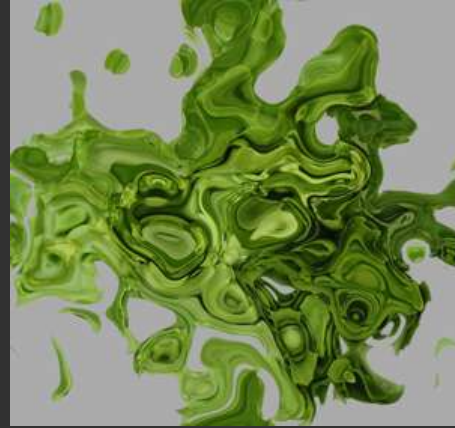
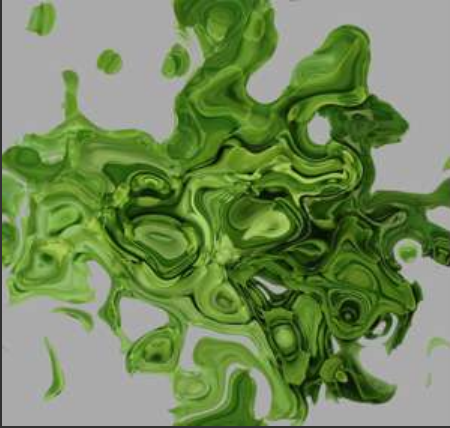
0 10 20 30 40 50 60 70 80 90 100





Please select the image that you believe is different from the others

Correct Response:  
Top Left

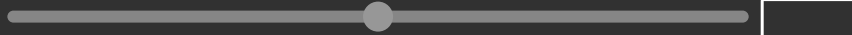


Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

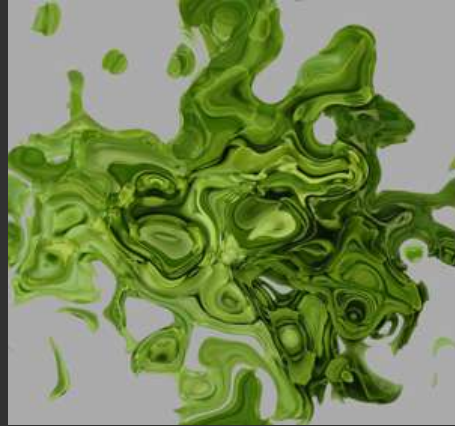
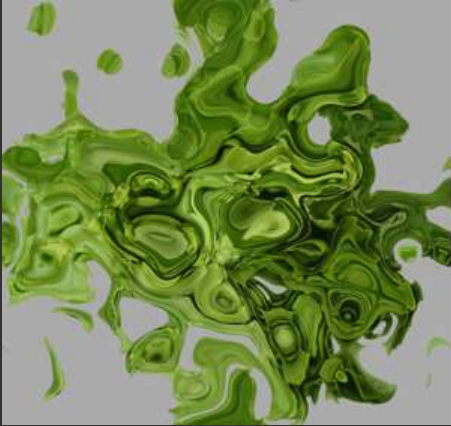
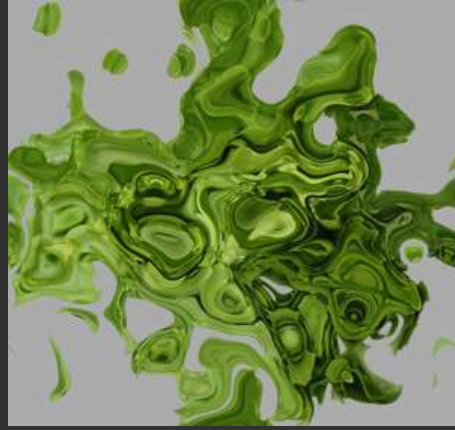
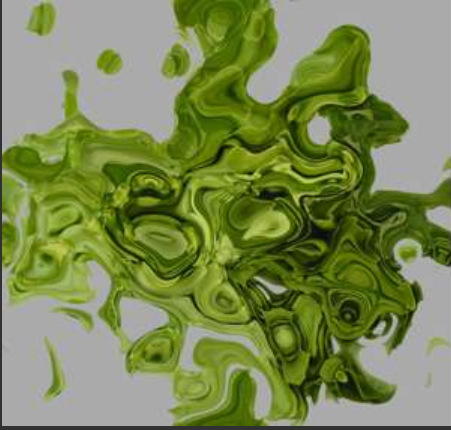
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others

Correct Response:  
Top Left

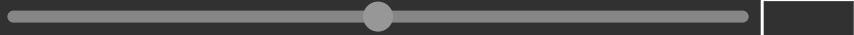


Please use the scale below to select how confident you feel about the answer you gave

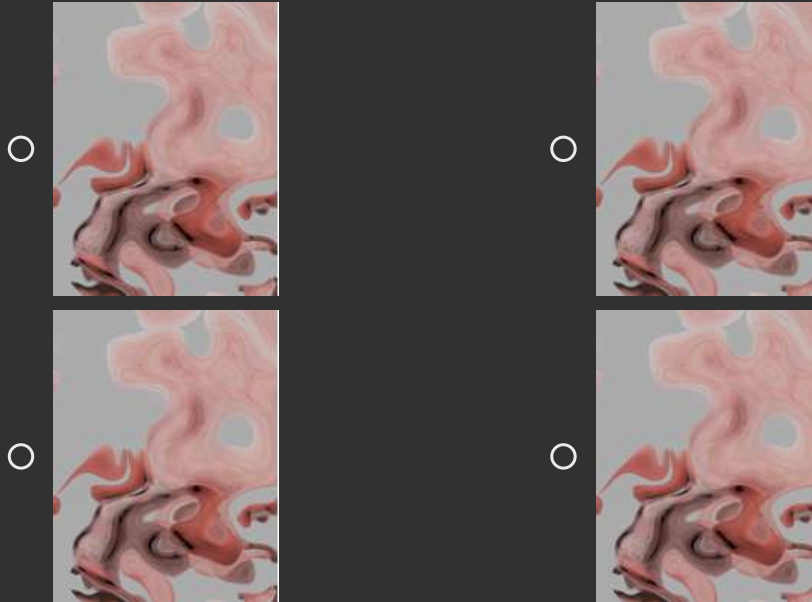
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others



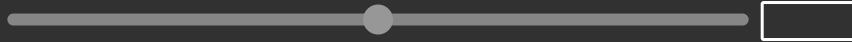
Correct Response:  
Top Right

Please use the scale below to select how confident you feel about the answer you gave

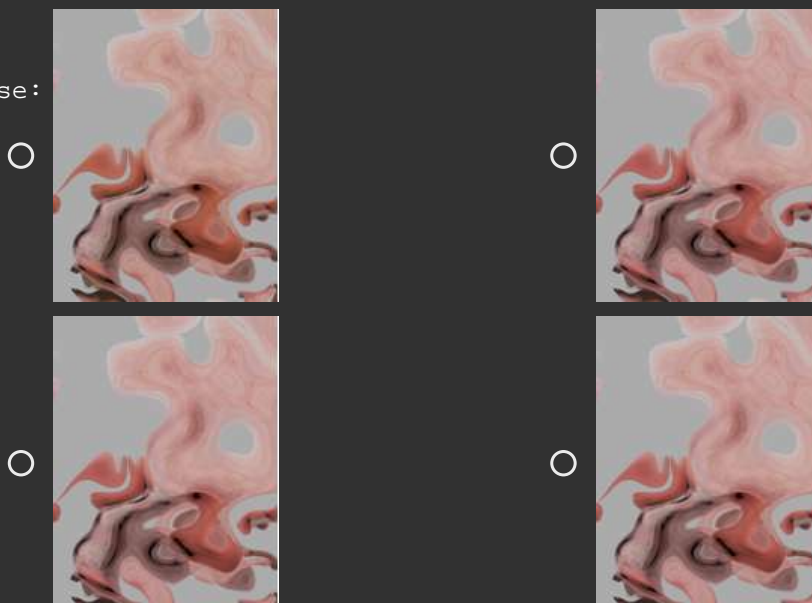
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Please select the image that you believe is different from the others



Correct Response:  
Top Left

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

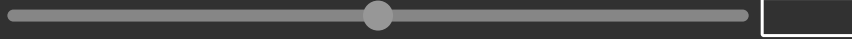
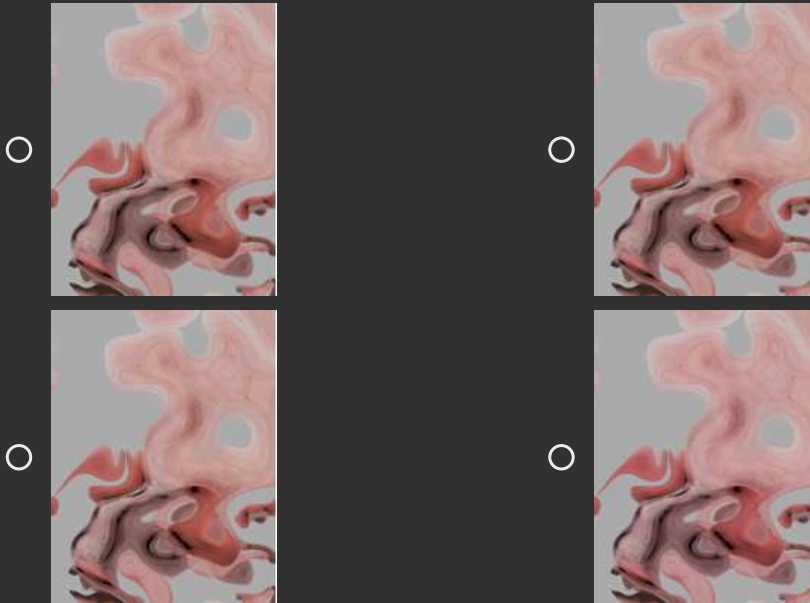


Fig - Rotated Minus

Please select the image that you believe is different from the others



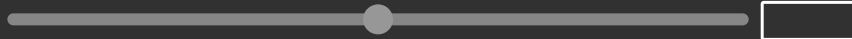
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

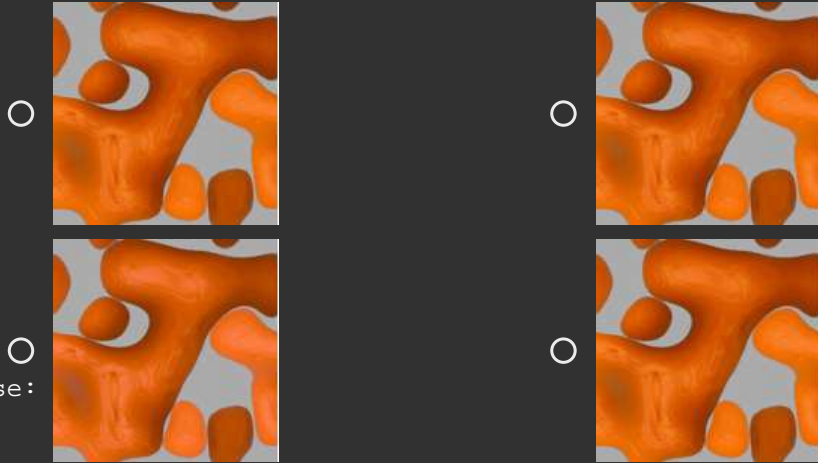
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

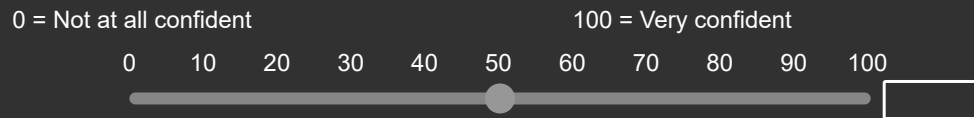


Please select the image that you believe is different from the others

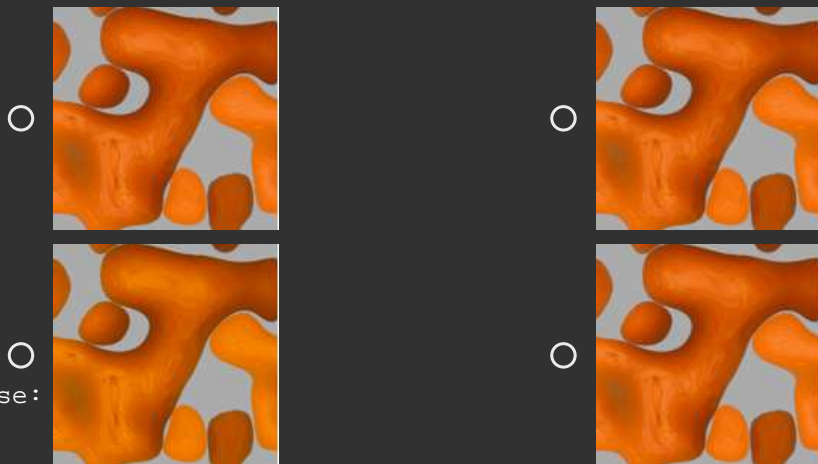


Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave



Please select the image that you believe is different from the others



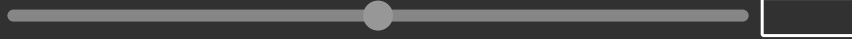
Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

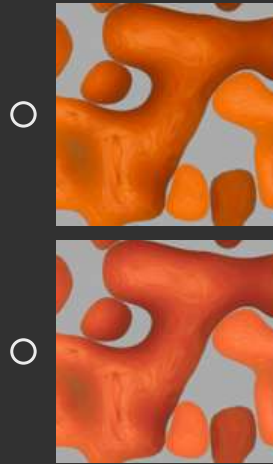
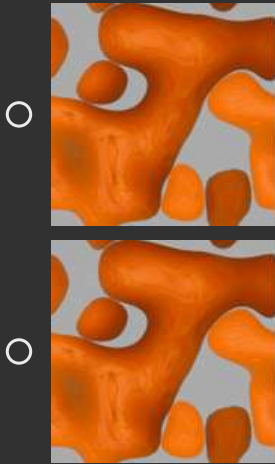
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Orange - Rotated Minus

Please select the image that you believe is different from the others



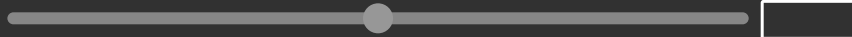
Correct Response:  
Bottom Right

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

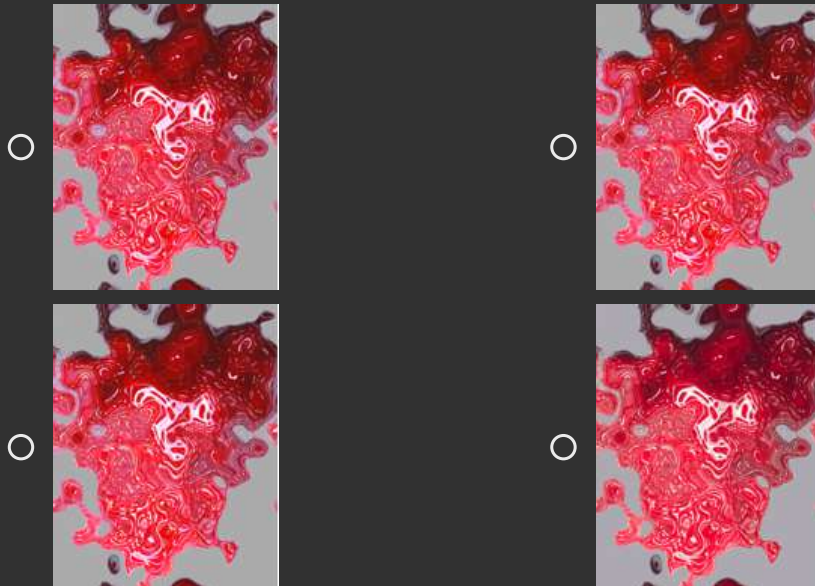
100 = Very confident

0 10 20 30 40 50 60 70 80 90 100





Please select the image that you believe is different from the others

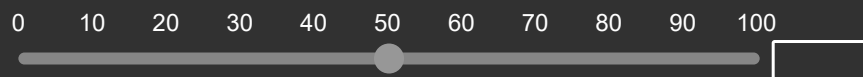


Correct Response:  
Bottom Right

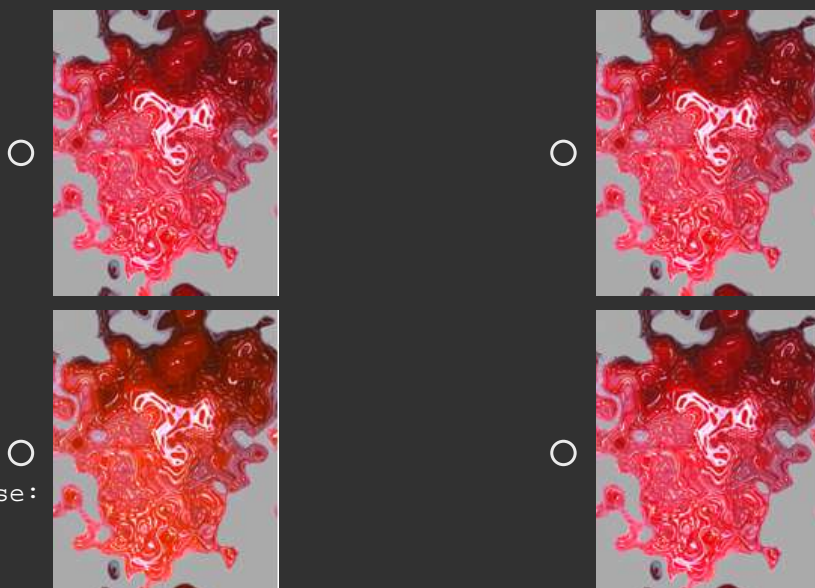
Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident



Please select the image that you believe is different from the others



Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

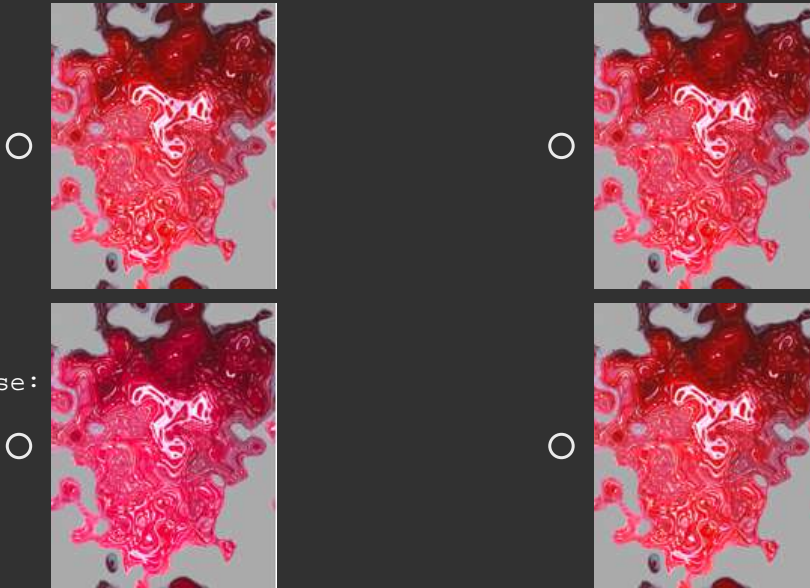
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

Strawberry - Rotated Minus

Please select the image that you believe is different from the others



Correct Response:  
Bottom Left

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

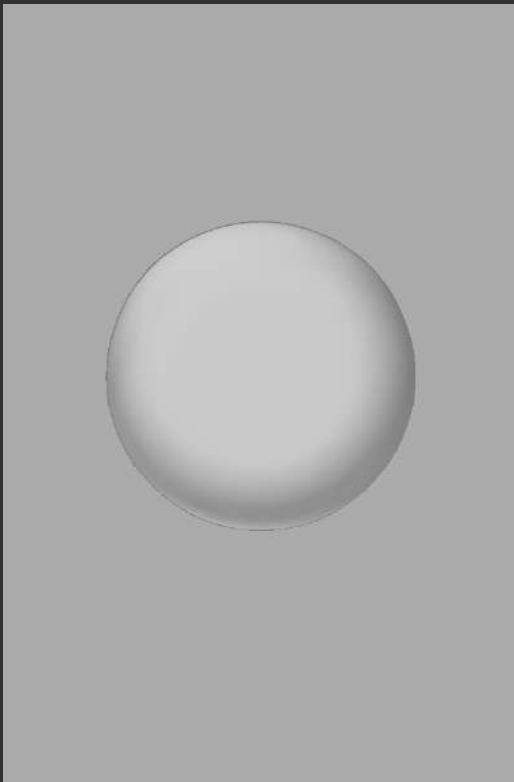
Memory Colour Section

**HAVE A BREAK, CHECK A GREY...**  
...as at the very beginning.



### Which of these disks looks totally grey?

One of these two disks looks purely grey, whilst the other may appear to have colour mixed in. If neither looks purely grey, choose the most grey one.



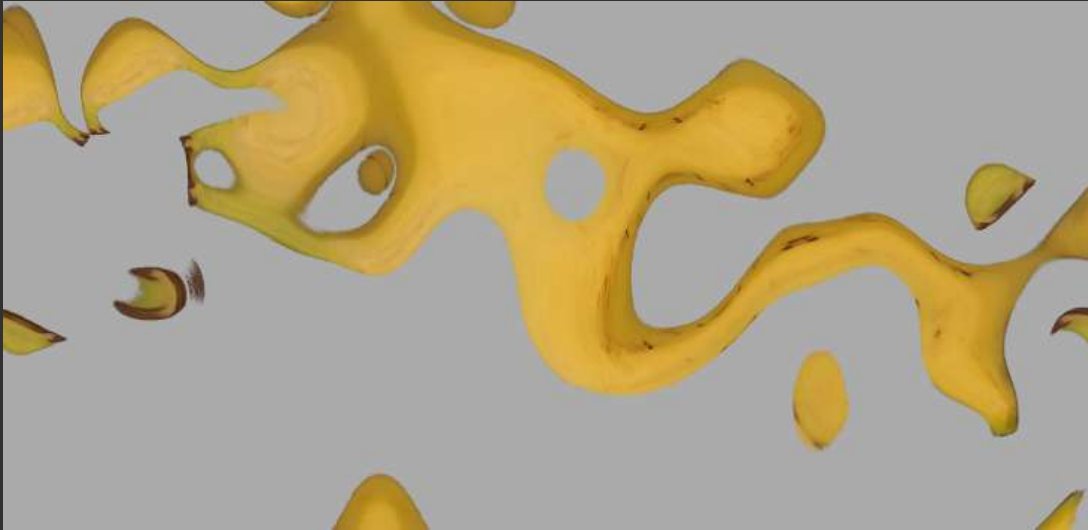
Recognition Check

Can you guess what that is?

In this short part, we just want to know whether you have any idea what those shapes you saw before, could be.

Banana - Recognition Check

Can you guess what this is?



No idea

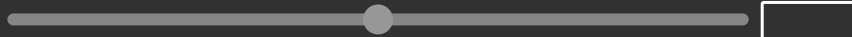
Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Can you guess what this is?



No idea

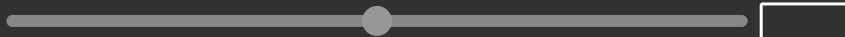
Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

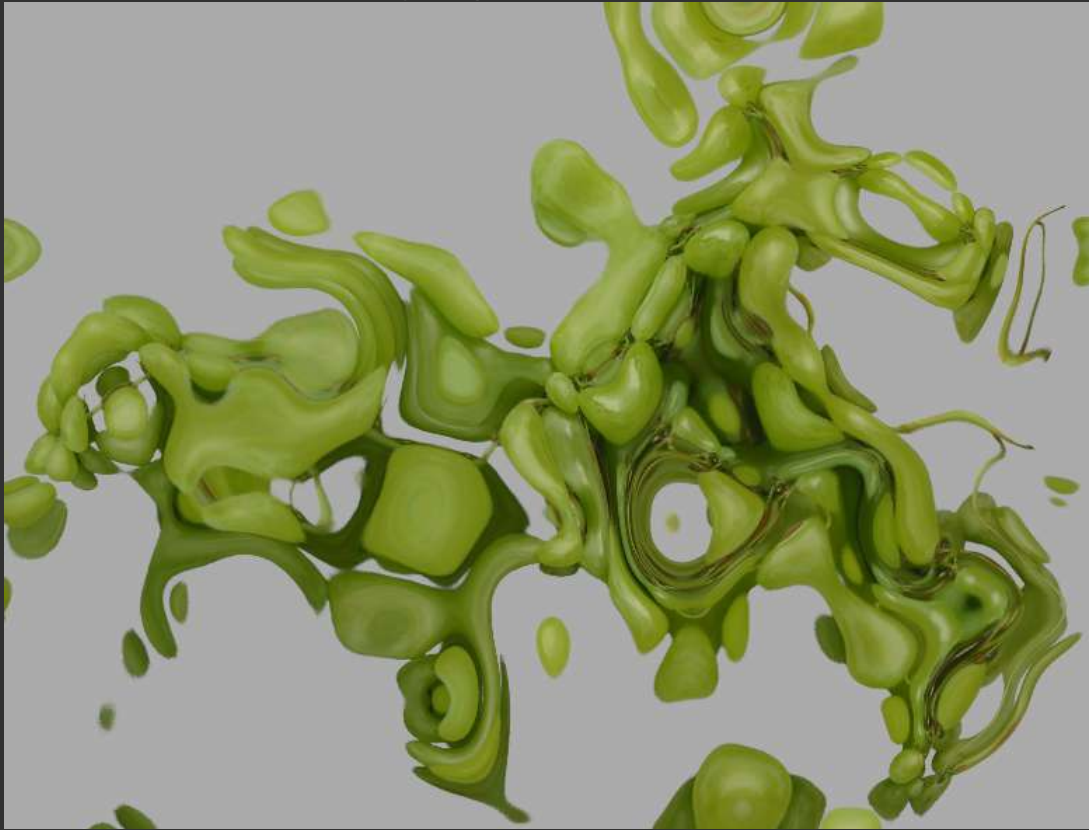
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Can you guess what this is?



No idea

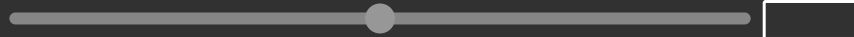
Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



Can you guess what this is?



No idea

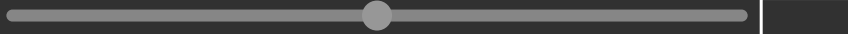
Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

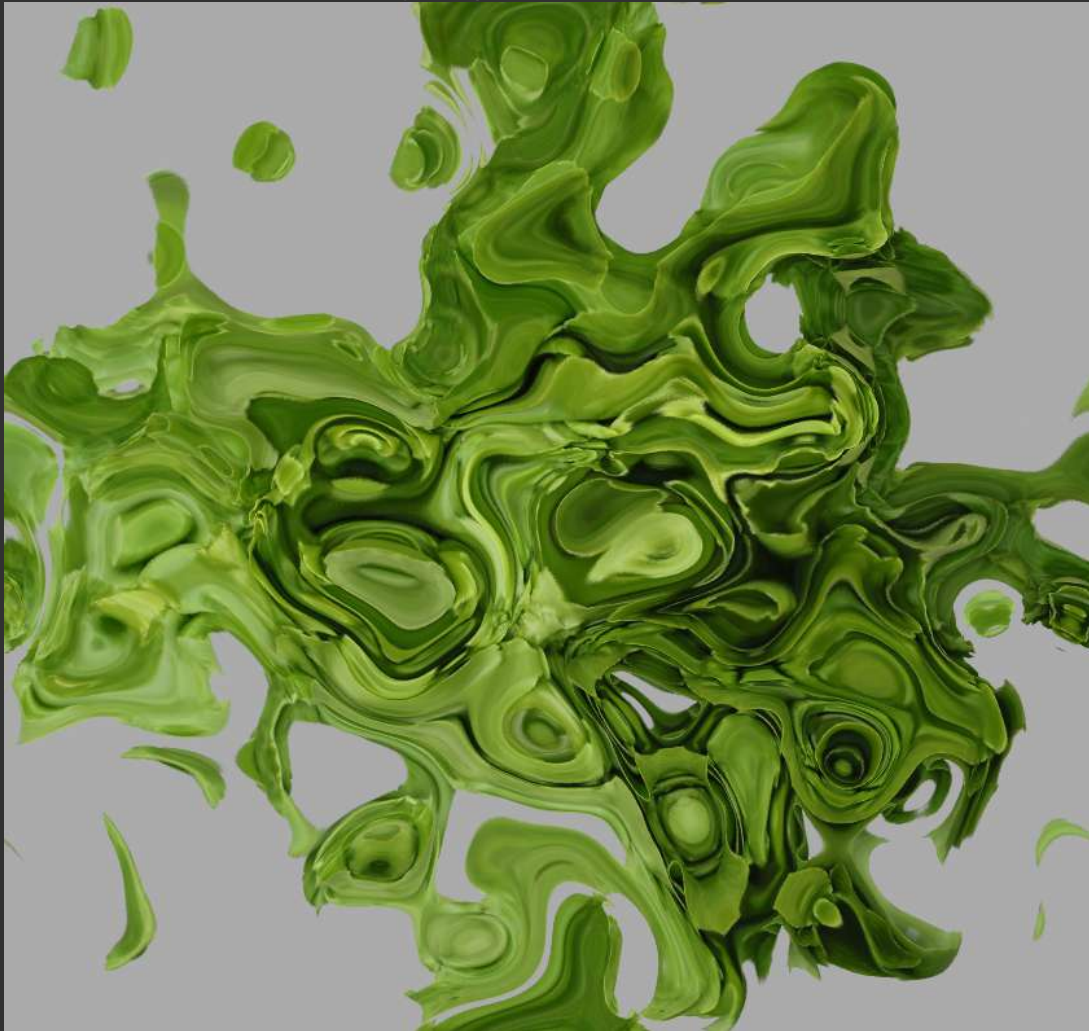
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100

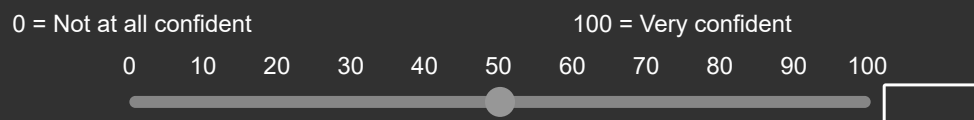


### Can you guess what this is?

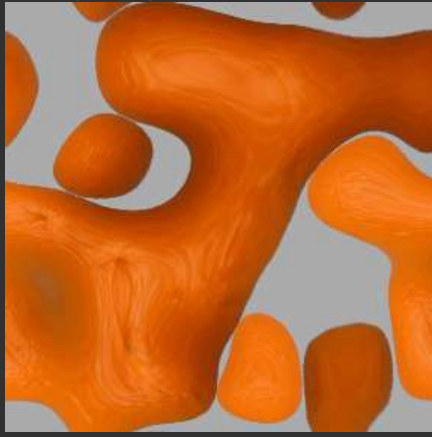


- No idea
- Yes, this is

Please use the scale below to select how confident you feel about the answer you gave



Can you guess what this is?



No idea

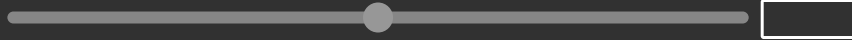
Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

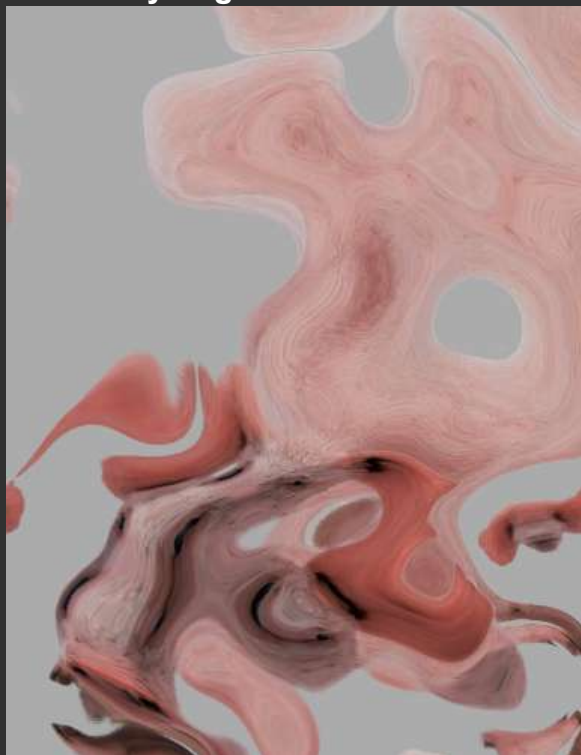
0 = Not at all confident

100 = Very confident

0 10 20 30 40 50 60 70 80 90 100



### Can you guess what this is?

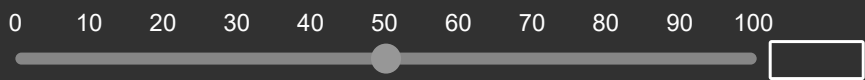


- No idea
- Yes, this is

Please use the scale below to select how confident you feel about the answer you gave

0 = Not at all confident

100 = Very confident





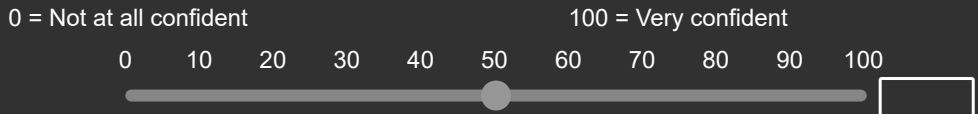


Can you guess what this is?



- No idea
- Yes, this is

Please use the scale below to select how confident you feel about the answer you gave



**Before you go...**  
... last question, promised!

### Which of these bananas looks totally grey?

One of these two bananas looks purely grey, whilst the other may appear to have colour mixed in. If neither looks purely grey, choose the most grey one.

