

Getting Started

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ZAPS 2.0 Psychology Labs work on computers, tablets, and smartphones. This page provides details on which devices and browsers are best for accessing ZAPS, and gives an illustrated walkthrough of the steps completed by students in each lab.

Hide All Answers

Which devices and browsers are best for accessing ZAPS?

To view minimum system requirements for using ZAPS, please [click here](#).

How do I register for ZAPS?

You can access ZAPS in three ways:

1. **Enter a registration code.**
 - A ZAPS registration code comes for free with new copies of select Norton textbooks.
2. **Make an online purchase.**
 - You can purchase access to ZAPS online. If you purchase an ebook, your ebook purchase will automatically entitle you to ZAPS access.
3. **Register via trial access.**
 - You can access ZAPS for three weeks through trial access. At the end of three weeks, you will have to enter a registration code or purchase access online to continue using ZAPS.

How do I get started using ZAPS?

There is a great Getting Started resource available on the Norton Learning Tools page for your textbook or ZAPS (you don't even need to create an account or login to access it!):

1. Go to the Norton Learning Tools page for your textbook or the Norton Learning Tools page for ZAPS. The link starts with "https://digital.wwnorton.com/" and ends with the short title of your textbook. We recommend asking your instructor for the exact link to make sure you are accessing the correct textbook required for your course.
 - For example, here is the link for the Norton Learning Tools page for ZAPS:
<https://digital.wwnorton.com/zaps2>
2. Click on the Getting Started tile:



ZAPS The Norton Psychology Labs

Second Edition

SIGN IN, REGISTER A CODE, OR PURCHASE ACCESS



ZAPS

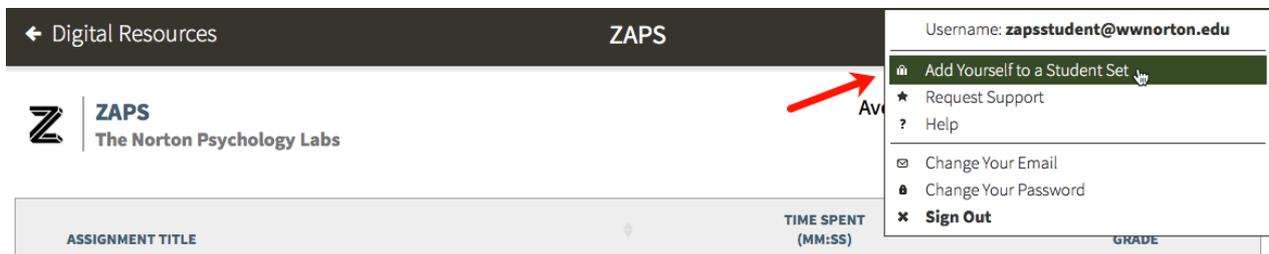


Getting Started

How do I check that I joined the correct Student Set?

If you have already joined a Student Set and you would like to confirm that you joined the correct Student Set, please follow these steps:

Click on the account icon in the upper right corner and select Add Yourself to a Student Set from the menu.



Any Student Sets of which you are currently are a member will displayed near the top of the window that appears.

← Digital Resources ZAPS iqstudent@wnnorton.edu ⚙️

ZAPS
The Norton Psychology Labs

ASSIGNMENT TITLE	GRADE
Stroop Effect	—
Split Brain	—
Visual Search	—
Signal Detection	—
Face Perception	—
Ponzo Illusion	—
Classical Conditioning	—
Serial Position	—
Sensory Memory	—

You are currently enrolled in the following current Student Set(s) for this product:

- 58411: Psychology 101, Section 1 (US_PA: Duquesne University (ID 22860))

To add yourself to another Student Set, enter the 5-digit Student Set ID number here, then click "OK" below:

Student Set ID:

It is usually fine to be in two different Student Sets at the same time. But if you need to be removed from a previously-joined student set, please contact your instructor or W. W. Norton Customer Support.

*Need help? Contact **W. W. Norton Customer Support***

Cancel OK

You can add yourself to as many Student Sets as you would like. However, you cannot remove yourself from a Student Set; only your instructor can perform that action.

If you enrolled in the wrong Student Set, enroll in the correct one and notify your instructor of the mistake. Your instructor can then remove you from the incorrect Student Set.

If you joined a Student Set that is not accessible to your instructor, please contact the W. W. Norton help desk to be removed from the incorrect Student Set: <http://support.wwnorton.com>

What if my instructor doesn't give me a Student Set ID?

Don't sweat it. There are two likely reasons for this: Either your instructor is not assigning ZAPS for a grade, or it's integrated with your campus learning management system (Blackboard, Moodle, etc.), in which case you don't need a Student Set ID; your grades will automatically report to your instructor.

How do I change the email address I use to access ZAPS?

If you registered or purchased access to ZAPS and you used the wrong email address, click on account icon in the upper-right corner and select Change Your Email button within the menu.

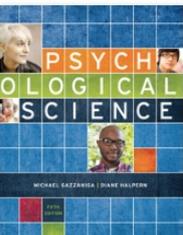


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DIGITAL RESOURCES

Username: **zapsstudent@wnnorton.edu**

- 🏠 Add Yourself to a Student Set
- ★ Request Support
- ? Help
- ✉️ Change Your Email**
- 🔑 Change Your Password
- ✖ Sign Out



Psychological Science
FIFTH EDITION
Gazzaniga and Halpern

Provide the required information on the Change Your Registered Email Address window and click the Submit button.

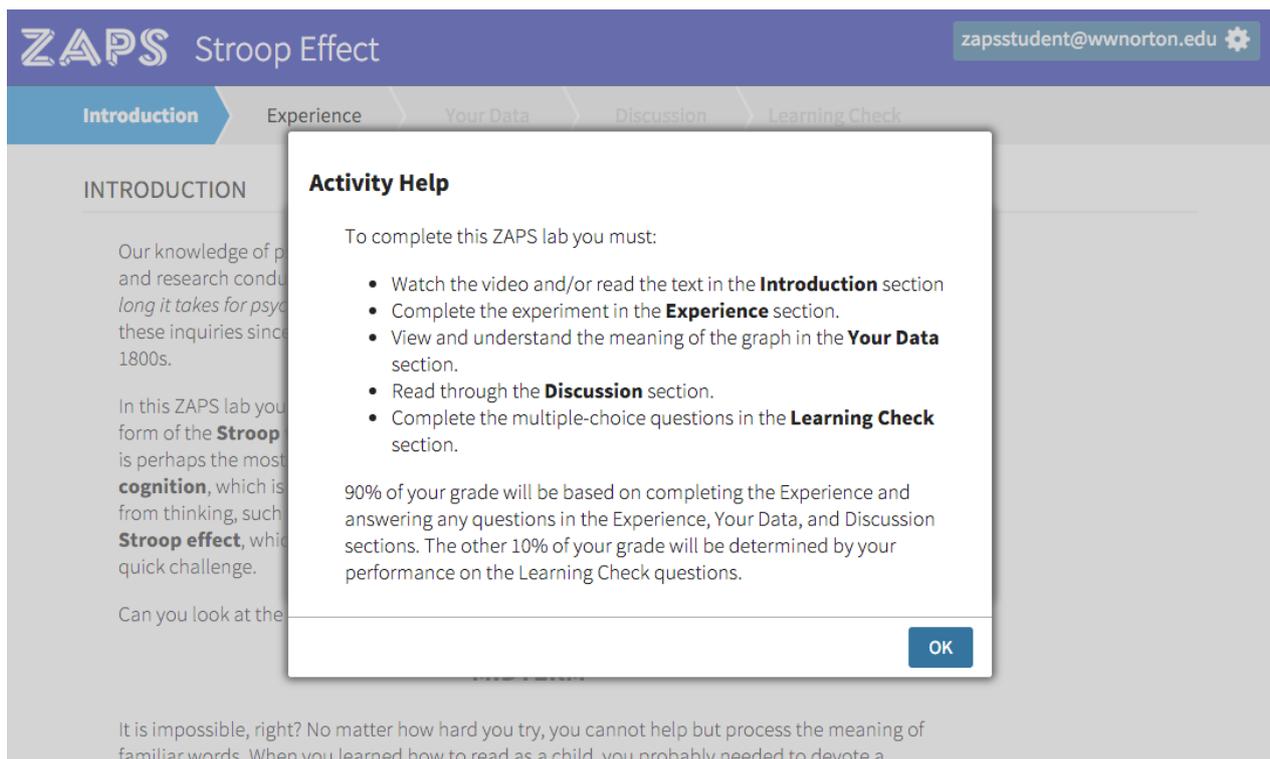
Please note, you can update your email address any time within 14 days of creating your account. After 14 days, please contact [W. W. Norton Customer Support](#) for assistance.

How do I complete ZAPS activities?

To complete a ZAPS activity, you must:

- Watch the video and/or read the text in the **Introduction** section.
- Complete the experiment in the **Experience** section.
- View and understand the meaning of the graph in the **Your Data** section.
- Read through the **Discussion** section.
- Complete the multiple-choice questions in the **Learning Check** section.

90% of your grade will be based on completing the Experience and answering any questions in the Experience, Your Data, and Discussion sections. The other 10% of your grade will be determined by your performance on the Learning Check questions.



The screenshot shows the ZAPS Stroop Effect activity interface. At the top, there is a navigation bar with the ZAPS logo and the title 'Stroop Effect'. On the right, there is a user email address 'zapsstudent@wwnorton.edu' and a settings gear icon. Below the navigation bar, there are five tabs: 'Introduction', 'Experience', 'Your Data', 'Discussion', and 'Learning Check'. The 'Introduction' tab is currently selected. The main content area shows the 'INTRODUCTION' section with text about the Stroop effect. A white 'Activity Help' pop-up window is overlaid on the content, containing the following text:

Activity Help

To complete this ZAPS lab you must:

- Watch the video and/or read the text in the **Introduction** section
- Complete the experiment in the **Experience** section.
- View and understand the meaning of the graph in the **Your Data** section.
- Read through the **Discussion** section.
- Complete the multiple-choice questions in the **Learning Check** section.

90% of your grade will be based on completing the Experience and answering any questions in the Experience, Your Data, and Discussion sections. The other 10% of your grade will be determined by your performance on the Learning Check questions.

At the bottom right of the pop-up window is an 'OK' button.

Launching an Activity

If you have not yet joined a Student Set, you will be asked to join a Student Set each time you launch an activity. To join a Student Set, enter the Student Set ID number given to you by your instructor in the Student Set ID: field and click the OK button. You can dismiss this window without adding a Student Set ID by clicking the I don't have a Student Set ID at this time button.

If ZAPS is integrated within your campus learning management system (Blackboard, Moodle, etc.), you will not be asked to join a Student Set if you launch the activity using an integrated link within the LMS course. When

you login the first time when using a LMS-integrated link, you will be automatically enrolled in the proper Student Set.

The screenshot shows the ZAPS Stroop Effect interface. At the top, there is a blue header with the ZAPS logo and the text "Stroop Effect". On the right side of the header, there is a user email address "zapsstudent@wwnorton.edu" and a gear icon. Below the header is a navigation bar with five tabs: "Introduction", "Experience", "Your Data", "Discussion", and "Learning Check". The "Introduction" tab is currently selected and highlighted in blue. Below the navigation bar, the main content area is titled "INTRODUCTION". A modal dialog box is overlaid on the content, containing the following text: "If your instructor has given you a 5-digit Student Set ID number, enter it here:" followed by a text input field labeled "Student Set ID:". Below the input field, there is a paragraph: "Your activity results will be saved even if you haven't joined a Student Set. **But unless you're only using the activity for self-study, you need to join a Student Set for your instructor to see your grade.** Once you *do* join a Student Set, your results will instantly be visible in your instructor's activity report." Below this paragraph is a link: "Need help? Contact W. W. Norton Customer Support". At the bottom of the modal, there are two buttons: "I don't have a Student Set ID at this time" and "OK".

Introduction Section

The screenshot shows the ZAPS Stroop Effect interface with two numbered callouts. Callout 1 points to the gear icon in the top right corner of the header. Callout 2 points to the "Experience" tab in the navigation bar. The main content area is titled "INTRODUCTION" and contains the following text: "Our knowledge of psychology is continually updated by scientific observations, experiments, and research conducted in the lab and elsewhere. The measurement of **reaction time**—*how long it takes for psychological processes to occur in our brains*—has been an important aspect of these inquiries since the emergence of the first laboratories devoted to psychology in the late 1800s. In this ZAPS lab your reaction times will be measured. In the Experience section you will take a form of the **Stroop test**—a task designed to measure conflicts between two sensory inputs that is perhaps the mostly widely used and important of all cognitive tests. Cognitive tests examine **cognition**, which is the mental activity that includes thinking and the understanding gained from thinking, such as memory and intelligence. The Stroop cognitive test is based on the **Stroop effect**, which you will learn more about after the taking the test. But before that, try this quick challenge."

1. You can access the activity tools at any time during the activity by clicking the account icon in the upper right corner.
2. Use these tabs to progress through the activity. You must proceed sequentially through the activity. After you have finished reviewing the information presented on the Introduction tab, click on the Experience tab to move to the next section.

Experience Section

Before beginning the trials of an experiment, a box may appear that contains the instructions on how to complete that specific experiment. Please read this information carefully.

The screenshot shows the ZAPS Stroop Effect interface. At the top, there is a navigation bar with the ZAPS logo and the title 'Stroop Effect'. The user's email address 'zapsstudent@wwnorton.edu' is displayed in the top right corner. Below the navigation bar, there are tabs for 'Introduction', 'Experience', 'Your Data', 'Discussion', and 'Learning Check'. The 'Experience' tab is currently selected. In the center of the screen, an 'Instructions' dialog box is open. The dialog box contains the following text:

In each trial of this ZAPS lab, a single word will appear on the screen. Your task is to indicate as quickly as possible the **color of the text** used to "print" the word on the screen, by clicking or tapping one of the numbered buttons you'll see below the word, using the following key:

Button **1: BLUE** Button **2: RED** Button **3: BLACK**

For example, if you saw **pig**, you would click or tap the button labeled "2" as quickly as possible, to indicate that the color of the word is **RED**.

This won't be as easy as it might sound. The words you will be identifying the color of will be the names of colors themselves: BLUE, RED, and BLACK. Making your task even harder, the words and the colors will not always match. For example, you might see the word **BLACK**, in which case you should click or tap the button labeled "1" to indicate that the word appears in blue. Take a moment now to memorize what color each button number refers to, because the buttons will not be labeled during the experimental trials.

At the bottom right of the dialog box, there is a 'Got It' button.

You may need to answer a question about how to complete the upcoming trials in order to begin. After you answer the question, click the Got It button to proceed to the experiment trials.

The screenshot shows the ZAPS Stroop Effect interface, similar to the previous one. The 'Instructions' dialog box is still open, but it now contains a question:

remember to click or tap one of the buttons to indicate the printed color of the word:

Button **1: BLUE** Button **2: RED** Button **3: BLACK**

On each trial, what should you indicate as quickly as possible?

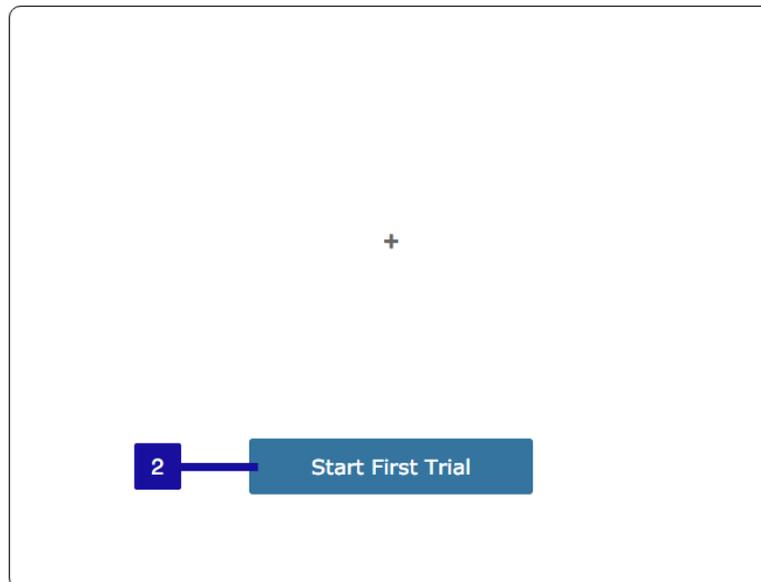
There are four answer options in yellow boxes:

- your favorite color
- the number of letters in the word
- the text color of the word (This option is highlighted with a green border and a green checkmark icon, indicating it is the correct answer.)
- the meaning of the word

Below the options, there is a green bar with the text 'Correct!'.

At the bottom of the dialog box, there is a 'Got It' button.

EXPERIENCE



1. If you need a reminder of how to complete the activity, click on the Instructions button in the upper right corner.
2. Click on the Start button to begin the experiment trials. If there are multiple sections of the experiment, you will need to click the Start button before beginning each section.

You will receive this message after completing all of the trials in the experiment. Click on the Your Data tab to review your experiment data.

Experiment Complete

You can now move on
to view Your Data.

Your Data Section

When arriving on the Your Data tab for the first time, the Data Introduction window may be displayed. This introduction will explain how to understand your results from the experiment you just completed.

In Stroop effect experiments, trials where the color named by the word was the same as the color of the text used for the word (e.g., **BLUE**) are called *congruent* trials. In contrast, trials where the color named by the word differs from the color of the text (e.g., **BLUE**) are called *incongruent* trials.

The key question is, does it take people longer to respond to incongruent trials than it does to respond to congruent trials? So, in the graph you will see next, we average across all the different individual combinations of words and text colors to determine the mean response time for congruent trials (**BLUE**, **RED**, and **BLACK**) and the mean response time for incongruent trials (**BLUE**, **BLACK**, **RED**, etc.).

In the table, we also show error rates for congruent and incongruent trials. To calculate error rate, we divide the number of incorrect trials for a condition by the total number of trials for the condition. For example, if you saw 20 incongruent trials and got two of them incorrect, your error rate would be $2 / 20 = 10\%$.

Based on your experience in the experiment, do you think your data will

Got It

You may need to answer a question about how to understand your results before being able to close the Data Introduction window. After you answer the question, click the Got It button to proceed to the Your Data tab.

ZAPS Stroop Effect zapsstudent@wwnorton.edu

Introduction Experience **Your Data** Discussion Learning Check

Data Introduction

...and the mean response time for incongruent trials (DEB, DEB, RED, etc.).

In the table, we also show error rates for congruent and incongruent trials. To calculate error rate, we divide the number of incorrect trials for a condition by the total number of trials for the condition. For example, if you saw 20 incongruent trials and got two of them incorrect, your error rate would be $2 / 20 = 10\%$.

Based on your experience in the experiment, do you think your data will show quicker responses to the congruent or the incongruent trials? Why?

You will initially receive full credit for any answer, but your instructor may review your response later.

Submit Answer

Got It

Graph Tab

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Introduction Experience **Your Data** Discussion Learning Check

YOUR DATA **1** **2** **3** **4** Data Intro

Graph Table Raw Data

Your Results

Average response time (msec)

2000
1500
1000
500

Trial type: Congruent
Class mean response time: 917 msec

9

Congruent Incongruent

5

6
7
8

■ Your results
■ Class results (n=2)
■ Reference results

Print chart
Download PNG image
Download JPEG image
Download PDF document
Download SVG vector image

Click the plot legend to show or hide bars.

1. The Graph tab will display a graph of your results, which can be compared to the reference and class

results.

2. The Table tab will display a chart that includes your results, the class results, and the reference data results (details below).
3. The Raw Data tab will display a chart of your complete trial data (details below).
4. Click the Data Intro button to reopen the Data Introduction window.
5. Click the menu icon to access the print menu. You can print or download the graph in a number of different formats.
6. Your results are displayed in red. Click on the Your results link to hide or display that information on the graph.
7. The class results are displayed in green. Click on the Class results (n=#) link to hide or display that information on the graph. If you were the first one to complete the activity, you will not see the class results category; at least two data submissions are required to view the class results category. The (n=#) identifies how many submissions are currently included within the class results (ex. n=2 means that the class results data is made up of 2 submissions). You must be enrolled in a Student Set for class results to be displayed.
8. The reference results are displayed in blue. Click on the Reference results link to hide or display that information on the graph.
9. Hover your cursor over a point in the graph to view detailed information about those results.

Table Tab

ZAPS Stroop Effect zapsstudent@wwnorton.edu

Introduction Experience **Your Data** Discussion Learning Check

YOUR DATA Data Intro

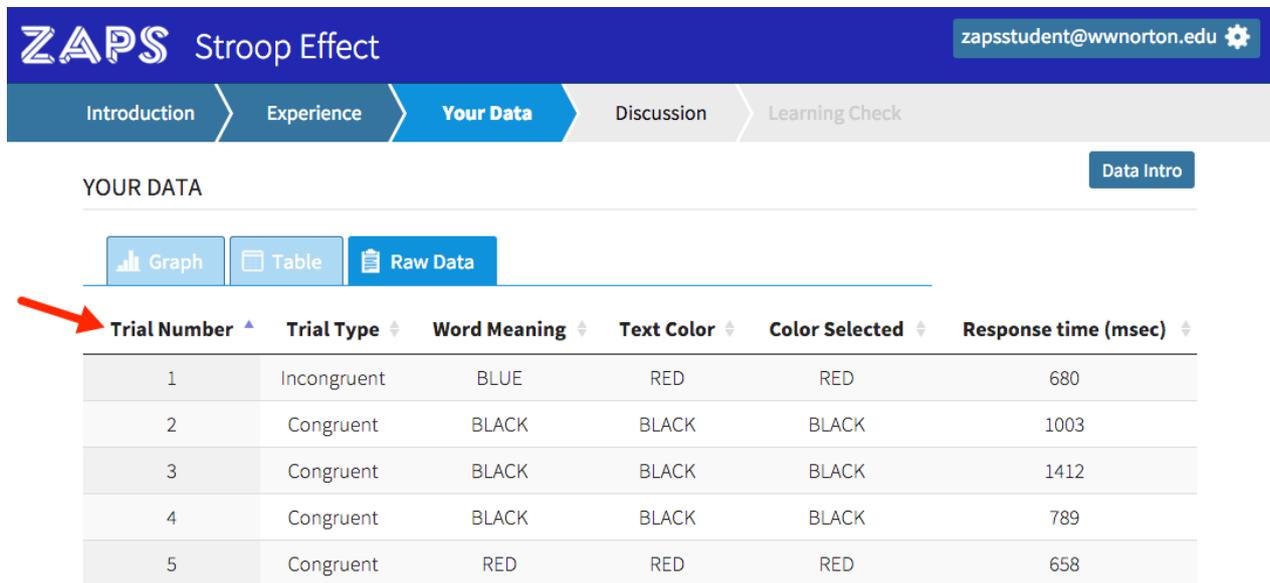
Graph Table Raw Data

	Error Rate (%)		Response Time (milliseconds)	
	Congruent Trials	Incongruent Trials	Congruent Trials	Incongruent Trials
Your Results	0.0	5.0	941	838
Class Results (n=2)	0.0	2.0	917	919
Reference Results	3.0	10.0	1579	1766

1. This row displays the average results for your submission of the experiment trials.
2. This row displays the average results for the class submissions of the experiment trials. If you were the first one to complete the activity, you will not see the Class Results row; at least two data submissions are required to view the class results row. The (n=#) identifies how many submissions are currently included within the class results (ex. n=2 means that the class results data is made up of 2 submissions). You must be enrolled in a Student Set for class results to be displayed.
3. This row displays the average results for all submissions collected for this experiment across the country.

Raw Data Tab

The chart displays your responses for each trial of the experiment. Each column is sortable based on the information presented in that column. Click on the header title in each column to sort the information based on that category, either ascending or descending.



The screenshot shows the ZAPS Stroop Effect interface. At the top, there is a navigation bar with tabs for 'Introduction', 'Experience', 'Your Data' (selected), 'Discussion', and 'Learning Check'. The user's email 'zapsstudent@wwnorton.edu' is displayed in the top right. Below the navigation bar, there is a 'Data Intro' button. The main content area is titled 'YOUR DATA' and contains three tabs: 'Graph', 'Table', and 'Raw Data' (selected). A red arrow points to the 'Raw Data' tab. Below the tabs is a table with the following columns: 'Trial Number', 'Trial Type', 'Word Meaning', 'Text Color', 'Color Selected', and 'Response time (msec)'. The table contains five rows of data.

Trial Number	Trial Type	Word Meaning	Text Color	Color Selected	Response time (msec)
1	Incongruent	BLUE	RED	RED	680
2	Congruent	BLACK	BLACK	BLACK	1003
3	Congruent	BLACK	BLACK	BLACK	1412
4	Congruent	BLACK	BLACK	BLACK	789
5	Congruent	RED	RED	RED	658

After you have finished reviewing the Your Data tab, click on the Discussion tab to move to the next section of the activity.

Discussion Section

The purpose behind the experiment trials you just completed will be discussed in greater detail in this section. You may be required to answer a few questions before moving on to the Learning Check section. As mentioned above the Submit Answer button for each free-response question, you will receive full credit automatically after submitting your response. However, your response can later be reviewed and your instructor can adjust your grade manually depending on the accuracy or thoughtfulness of your answer.

of mental conflict. You are probably familiar with many examples of conflict for example, the conflict between your impulses and your goals. As mentioned earlier in this ZAPS lab, the Stroop effect and Stroop tasks also have many applications in the study and clinical practices of psychology. For example, in one study, research subjects were hypnotized and told that they would be seeing meaningless symbols on a cognitive test. When then given a Stroop test, they did not show the typical results and had the same reaction times for congruent and incongruent trials. In this case, the Stroop test was used to verify the effectiveness of hypnosis.

This ZAPS lab was designed to help you better understand not just Stroop, but related topics that you will encounter as you study psychology. These include the measurement of reaction time in psychological studies, how your brain processes information, and how brain imaging has helped us understand the functioning of the brain and expanded our psychological knowledge.

Suppose we ran another experiment using the same stimuli used here, but flipping the instructions. That is, suppose your task was to identify the *meaning* of the word and ignore the *text color*. What would you expect to find when you looked at the response times of such an experiment?

You will initially receive full credit for any answer, but your instructor may review your response later.

Submit Answer

You will receive this message upon completing all of the required questions in the Discussion section. Click on the OK button to move on to the Learning Check section.

Understanding the Stroop effect should help you understand the broader psychological concept of mental conflict. You are probably familiar with many examples of conflict for example, the conflict between your impulses and your goals. As mentioned earlier in this ZAPS lab, the Stroop effect and Stroop tasks also have many applications in the study and clinical practices of psychology. For example, in one study, research subjects were hypnotized and told that they would be seeing meaningless symbols on a cognitive test. When then given a Stroop test, they did not show the typical results and had the same reaction times for congruent and incongruent trials. In this case, the Stroop test was used to verify the effectiveness of hypnosis.

This ZAPS lab was designed to help you better understand not just Stroop, but related topics that you will encounter as you study psychology. These include the measurement of reaction time in psychological studies, how your brain processes information, and how brain imaging has helped us understand the functioning of the brain and expanded our psychological knowledge.

Answer the questions in the Learning Check section to complete this ZAPS lab.

OK

Suppose we ran another experiment using the same stimuli used here, but flipping the instructions. That is, suppose your task was to identify the *meaning* of the word and ignore the *text color*. What would you expect to find when you looked at the response times of such an experiment?

I think the outcome would be similar but it may prove more challenging to identify the meaning of the word if both experiments are performed one right after another.

Answer has been submitted

Learning Check Section

The Learning Check section counts towards 10% of your final grade. 90% of your final grade was compiled from your responses to the questions in the previous sections as well as the completion of the experiment trials.

Answer each question to complete the activity and receive your final grade. Once finished, you will receive the message below. Please remember, your final grade can change at your instructor's discretion depending on your answers to the free-response questions. Click on the OK button to close the completion and final grade message box.

The screenshot displays the ZAPS Stroop Effect lab interface. At the top, the title "ZAPS Stroop Effect" is shown on the left, and on the right, a green checkmark icon indicates "Activity Complete" with a "Grade: 100%". Below the title, a navigation bar contains five tabs: "Introduction", "Experience", "Your Data", "Discussion", and "Learning Check", with "Learning Check" being the active tab. The main content area shows a question: "Since these shapes do not have established meanings, there should be nothing interfering with the process of naming their colors." Below the question, a message states: "You answered the question correctly on your first attempt, so your grade for the question is 100%." A second question is partially visible: "Imagine you are a web designer and you are designing an interactive website. You used a number to indicate to users that it's time to click on a button. The number is presented in this ZAPS lab. What is the purpose?" A white pop-up message box is overlaid on the second question, containing the text: "You've completed this ZAPS lab, with a final grade of 100%." and an "OK" button. Below the questions, there are four colored boxes, each containing a "GO" button. The top-left box is yellow with a green octagonal "GO" button. The top-right box is yellow with a red circular "GO" button. The bottom-left box is green with a green circular "GO" button and a small green checkmark icon in the top-left corner. The bottom-right box is yellow with a red octagonal "GO" button. At the bottom of the interface, a green bar displays the word "Correct!".

The Activity Complete and green checkmark badge will appear to the left of the account icon after completing the activity. Your grade will also be displayed.

LEARNING CHECK

Answer the following questions to complete this ZAPS activity. Your performance in this section accounts for 10% of your grade.

Based on the ideas presented in this ZAPS lab, under which of the following conditions do you think participants would be able to most quickly name the color in which the stimuli are written or drawn?

incongruent color words (e.g., blue, red, green)

colored words with incongruent color associations (e.g., grass, banana, sky)

 colored "blobs" (e.g.,  ,  , )

Correct!

Since these shapes do not have established meanings, there should be nothing interfering with the process of naming their colors.