

# Getting Started

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ZAPS 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

## How do I get started using ZAPS?

There is a great Getting Started resource available on the Digital Resources page for your textbook or ZAPS.

1. Go to the Digital Resources page for your textbook. The link starts with <https://digital.wwnorton.com/> and ends with the short title of your textbook. If you need help finding the link for your textbook, please contact your [Norton representative](#) .
  - For example, here is the link for the Digital Resources page for ZAPS:  
<https://digital.wwnorton.com/zaps2>
2. Login to the Digital Resources page using your Norton account. Please note, to access the Getting Started resource specially designed for instructors, your Norton account needs to be authorized as an instructor. If you need to have your account authorized as an instructor, please contact your [Norton representative](#) .
3. Click on the Getting Started tile:



# ZAPS The Norton Psychology Labs

Second Edition

! If you are using ZAPS with one of the following textbooks, please access your ZAPS Labs via the book's digital home page:



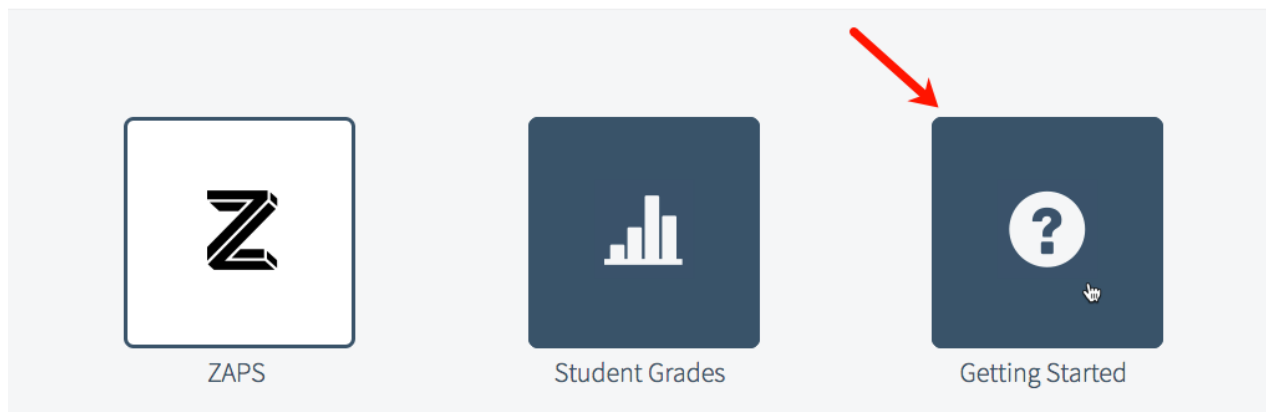
*Cognition: Exploring the Science of the Mind*, 6th Edition, by Daniel Reisberg (<https://digital.wwnorton.com/cognition6>)



*Psychological Science*, 5th Edition, by Gazzaniga and Halpern (<https://digital.wwnorton.com/psychsci5>)



*Psychology in Your Life*, 2nd Edition, by Grison and Gazzaniga (<https://digital.wwnorton.com/psychlife2>)



## Which devices and browsers are best for accessing ZAPS?

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

## How do students complete ZAPS activities?

To complete a ZAPS activity, students 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 students' grades will be based on completing the Experience and answering

any questions in the Experience, Your Data, and Discussion sections. The other 10% of your students' grades will be determined by their performance on the Learning Check questions.

The screenshot shows the ZAPS Stroop Effect activity interface. At the top, there is a purple header with the ZAPS logo and the text 'Stroop Effect'. On the right side of the header, there is a green button with the email address 'zapsstudent@wnnorton.edu' and a gear icon. Below the header, there is a navigation bar with five tabs: 'Introduction' (highlighted in blue), 'Experience', 'Your Data', 'Discussion', and 'Learning Check'. The main content area is divided into two columns. The left column is titled 'INTRODUCTION' and contains text about the Stroop effect. The right column is partially obscured by a white modal window titled 'Activity Help'. The modal window contains the following text: 'To complete this ZAPS lab you must:' followed by a bulleted list of five requirements: 1. Watch the video and/or read the text in the **Introduction** section. 2. Complete the experiment in the **Experience** section. 3. View and understand the meaning of the graph in the **Your Data** section. 4. Read through the **Discussion** section. 5. Complete the multiple-choice questions in the **Learning Check** section. Below the list, the modal window states: '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 modal window, there is a blue button labeled 'OK'. The background of the modal window is semi-transparent, showing the underlying text of the introduction section.

## Launching an Activity

If your students have not yet joined a Student Set, they will be asked to join a Student Set each time they launch an activity. To join a Student Set, students enter their Student Set ID number in the Student Set ID: field and click the OK button. Students 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, Canvas, Moodle, etc.), your student will not be asked to join a Student Set if they launch the activity using an integrated link within your LMS course. When students login the first time when using a LMS-integrated link, they will be automatically added to the proper Student Set.

**ZAPS Stroop Effect** zapsstudent@wnnorton.edu

Introduction Experience Your Data Discussion Learning Check

**INTRODUCTION**

Our knowledge of perception and research conducted by Stroop on *long it takes for psychology* these inquiries since the 1800s.

In this ZAPS lab you will experience the Stroop effect in the form of the Stroop test. The Stroop effect is perhaps the most well-known example of **interference**, which is a cognitive process that occurs when the brain is presented with conflicting information. For example, the Stroop effect is the delay in reading the word "red" when the word is written in blue ink. This is because the brain is trying to process the color of the ink (blue) while also trying to process the meaning of the word (red). The Stroop effect is a classic example of the Stroop effect, which is a cognitive challenge.

Can you look at the word in the middle of the screen below without thinking about its meaning?

**MIDTERM**

It is impossible, right? No matter how hard you try, you cannot help but process the meaning of familiar words. When you learned how to read as a child, you probably needed to devote a

If your instructor has given you a 5-digit Student Set ID number, enter it here:

**Student Set ID:**

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.

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

I don't have a Student Set ID at this time OK

When you launch an activity while logged in as an instructor, you will see the For Instructors tab (this tab is only visible to instructors, not students). You can use the links on the For Instructors tab to access the Class Activity Report and Activity Settings for the selected activity. As an instructor, you can access any tab of the activity at any time. However, your students will need to progress sequentially through each activity. To experience how your students will complete the selected activity, click on the Preview link.

**ZAPS Stroop Effect** zapsinstructor@wnnorton.edu

For Instructors Introduction Experience Your Data Discussion Learning Check

**FOR INSTRUCTORS**

With ZAPS labs, your students interactively explore key psychological concepts to gain a deeper understanding of the concepts as well as of the scientific process.

**Welcome! You have instructor-level access.** What would you like to do?

- View your **Class Activity Report**
- Review or update **Activity Settings**
- **Preview** the activity as a student

## Introduction Section

## INTRODUCTION

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 gear icon in the upper right corner.
2. Use these tabs to progress through the activity. You must proceed sequentially through the activity and complete one section before moving on to the next. 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.

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Introduction Experience Your Data Discussion Learning Check

Instructions

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.

Got It

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.

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Introduction Experience Your Data Discussion Learning Check

Instructions

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?

your favorite color

the number of letters in the word

the text color of the word

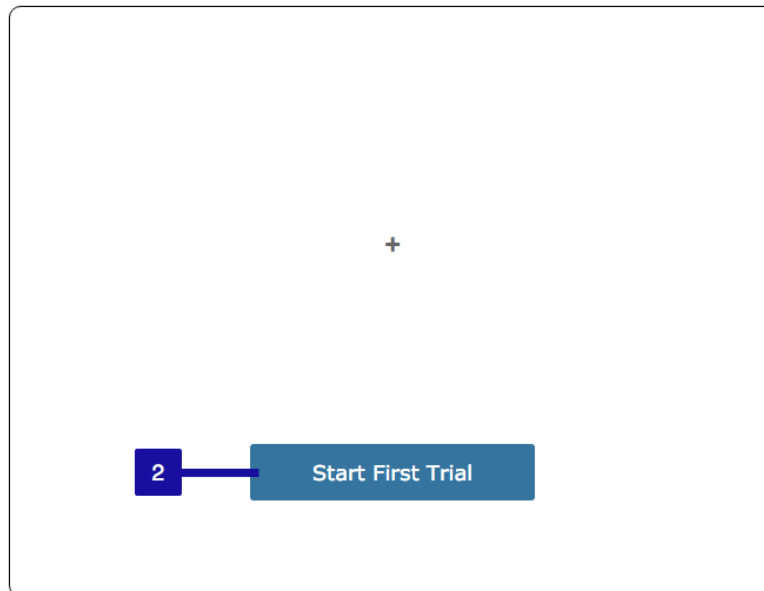
the meaning of the word

**Correct!**

You answered the question correctly on your first attempt, so your grade for the question is **100%**.

Got It

## 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 to begin 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.



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Introduction Experience **Your Data** Discussion Learning Check

Data Intro

**Data Introduction** ✕

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.

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Introduction Experience **Your Data** Discussion Learning Check

Data Intro

**Data Introduction** ✕

**BLACK**, and the mean response time for incongruent trials (**BLUE, BLACK, RED, etc.**).

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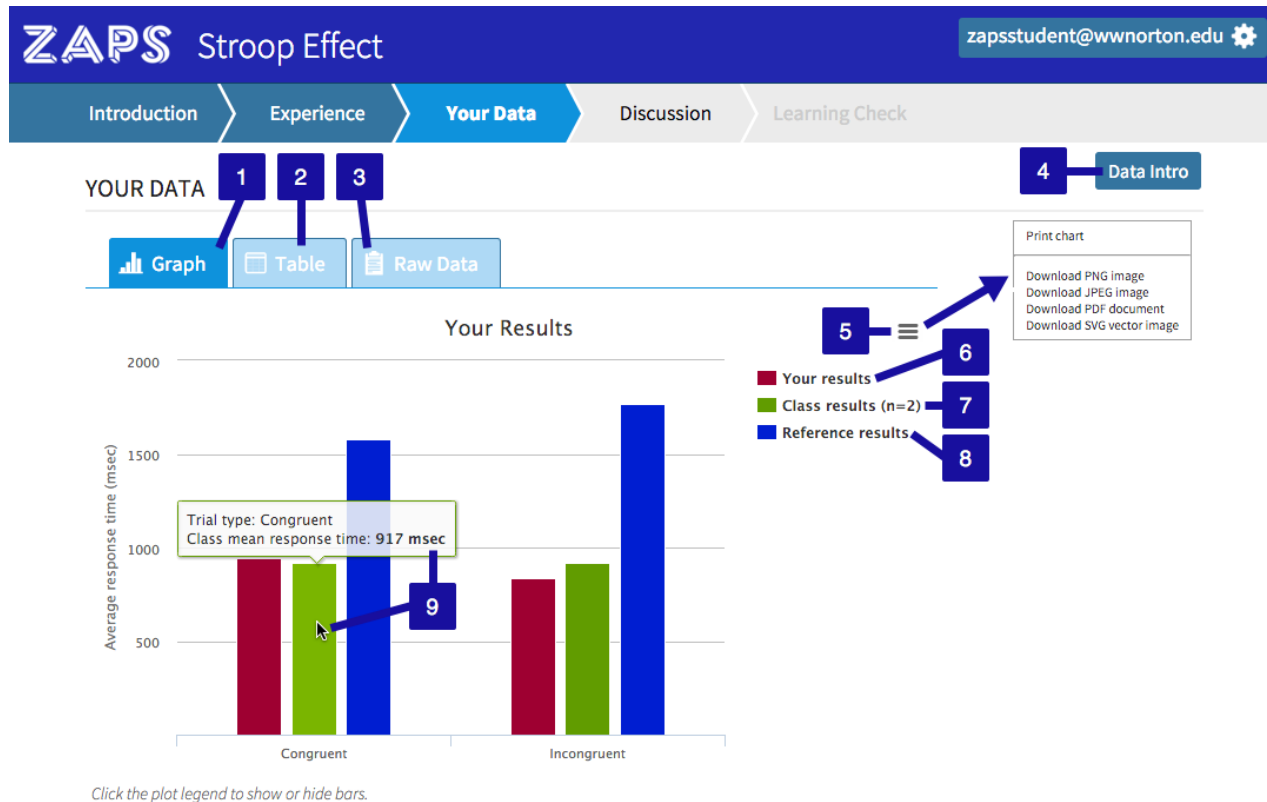
Based on your experience in the experiment, do you think your data will show quicker responses to the congruent or the incongruent trials? Why?

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

**Submit Answer**

**Got It**

## Graph Tab



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.

- The reference results are displayed in blue. Click on the Reference results link to hide or display that information on the graph.
- Hover your cursor over a point in the graph to view detailed information about those results.

## Table Tab

The screenshot shows the ZAPS Stroop Effect interface. At the top, there is a navigation bar with 'Introduction', 'Experience', 'Your Data' (selected), 'Discussion', and 'Learning Check'. A user email 'zapsstudent@wnorton.edu' is visible in the top right. Below the navigation bar, the 'YOUR DATA' section is active, with a 'Data Intro' button. Three tabs are visible: 'Graph', 'Table' (selected), and 'Raw Data'. The 'Table' tab displays a table with the following data:

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

Three blue callout boxes with numbers 1, 2, and 3 are positioned to the right of the table, pointing to the 'Your Results', 'Class Results', and 'Reference Results' rows respectively.

- This row displays the average results for your submission of the experiment trials.
- 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.
- 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 the ZAPS logo and the title 'Stroop Effect'. On the right side of the navigation bar, there is a user email address 'zapsstudent@wnorton.edu' and a settings gear icon. Below the navigation bar, there are five tabs: 'Introduction', 'Experience', 'Your Data', 'Discussion', and 'Learning Check'. The 'Your Data' tab is currently selected and highlighted in blue. To the right of the 'Your Data' tab, there is a 'Data Intro' button. Below the tabs, there are three sub-tabs: 'Graph', 'Table', and 'Raw Data'. The 'Table' sub-tab is selected. Below the sub-tabs, there is a table with the following columns: 'Trial Number', 'Trial Type', 'Word Meaning', 'Text Color', 'Color Selected', and 'Response time (msec)'. A red arrow points to the 'Trial Number' column header. 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?

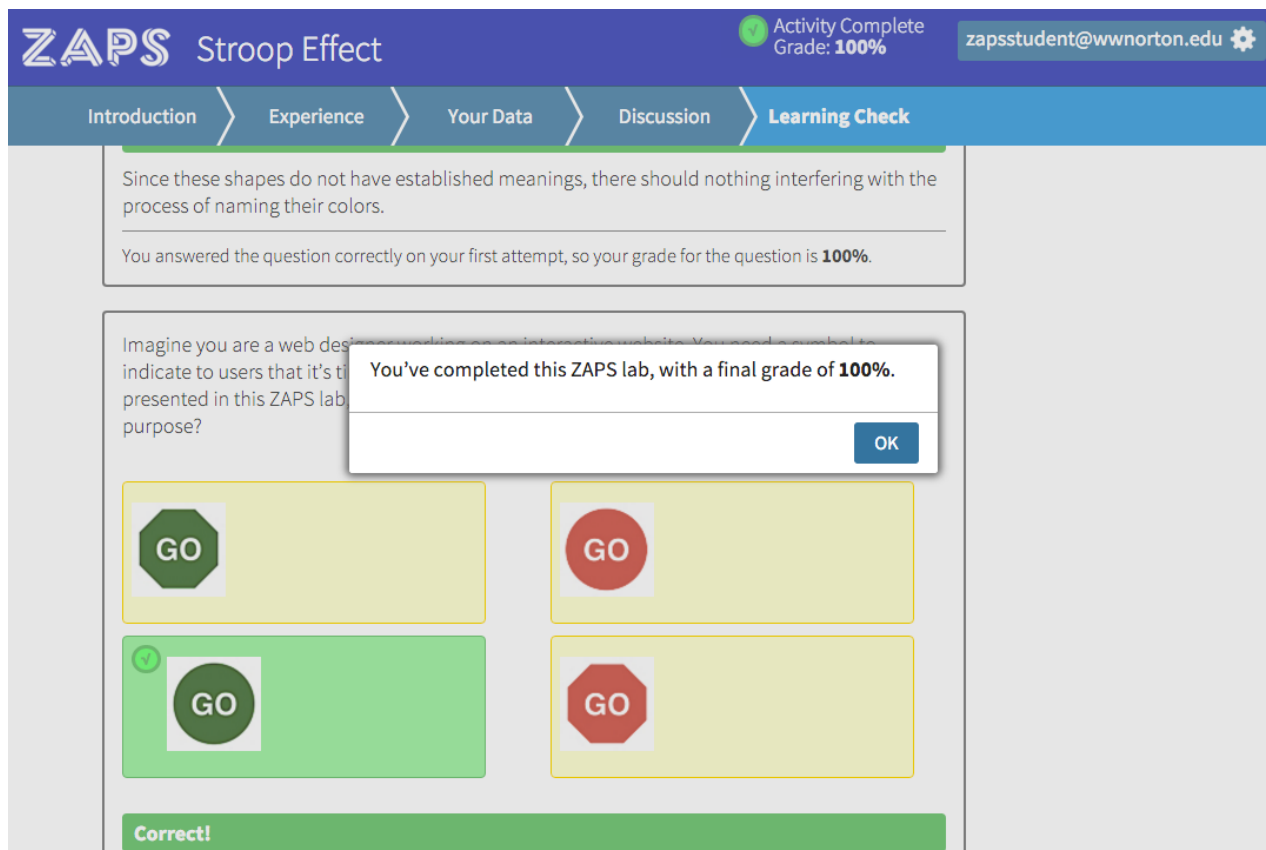
I think the outcome would be similar but it may prove more challenging to identify the meaning of the word if both experiments are performed one right after another.

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 window.



The screenshot shows the ZAPS Stroop Effect lab interface. At the top, the ZAPS logo and "Stroop Effect" are displayed. A progress bar indicates the current stage is "Learning Check", with previous stages "Introduction", "Experience", "Your Data", and "Discussion" completed. In the top right corner, a green checkmark icon indicates "Activity Complete" with a "Grade: 100%". The user's email address "zapsstudent@wnnorton.edu" and a gear icon for settings are also visible.

The main content area contains 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%."

Below the question, there is a text prompt: "Imagine you are a web designer working on an interactive website. You need a symbol to indicate to users that it's time to go. Which of the following symbols is best presented in this ZAPS lab for this purpose?"

A white completion message box is overlaid on the interface, stating: "You've completed this ZAPS lab, with a final grade of 100%." with an "OK" button.

Below the text prompt, there are four options, each in a colored box with a "GO" symbol:

- Top-left: A green octagon with "GO" on a yellow background.
- Top-right: A red circle with "GO" on a yellow background.
- Bottom-left: A green circle with "GO" on a green background, marked with a green checkmark icon.
- Bottom-right: A red octagon with "GO" on a yellow background.

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 gear 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.