

Name(s) \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

## Activity Guide - Routers and Redundancy



### Getting Started

**Go to the Internet Simulator:** Log into Code Studio and find today's lesson.

**Choose a Router:** Add a router if you need more space. Then join a router with a few of the people sitting closest to you. Ideally, you'll have 3-4 classmates with you on your router.

### Activity

**Find Your Classmate's IP Address:** To begin today's activity, explore the new version of the Internet Simulator. You've likely noticed that the structure of the messages has changed a little bit to include IP addresses both for you and for the person you are sending the messages to. If you look at the network visualization, you can find the IP addresses of your friends on the router. Use the new tool and get comfortable with the updated message format.

	To	From	Message
ASCII	13.2	13.8	Hey there!
Binary	1101 0010	1101 1000	01001000 01100101

96/Infinity bits

**Have a Conversation:** Choose two classmates on your router and exchange a short conversation with one another. Make sure your messages are getting through and that you're not sharing any secrets. You'll see why in a second!

**Read the Traffic:** Move to the router tab and click the "Log Browser" button to see the network traffic for your router. Then respond to the questions below.

- How many total messages passed over your router?
- About what percent of those messages did you actually receive?
- Did all the messages get through? Why might a message have been "Dropped"?
- Can you trace a full conversation between two of your classmates? What types of things are people talking about?

Instructions My Device Router

**Stats**

Uptime	0:10:14
Queued Packets	0
Memory Use	0b / Unlimited
Throughput	0bps / Unlimited
Routed Packets	1 / 1 (100%)
Routed Data	8B / 8B (100%)

**Logs**

Log Browser

My Router Logs show all routers

Time	Logged By	Status	From	To	Message
4:54:37.640 PM	Router 2	Success	2.9	2.14	Hello!

Close

**Find a Classmate on a Different Router:** You can actually send a message to classmates on different routers if you like; you just need to know their IP addresses. Ask two classmates from different routers to share their IP addresses with you.

**Have a Conversation:** Once again have a short conversation with each of your classmates.

**Read the Traffic:** In the same tab as before, click on the “Log Browser” button again, and then the “Show all routers” button. Then respond to the questions below.

- How many total messages were sent?
- Can you trace the full conversation between two of your classmates? What are they talking about?
- Is there anything different about the way messages are being sent this time? Why might that be the case?
- Send multiple messages to the same person on a different router. Do your messages always take the same path? What do you think this is simulating?



**Reflect:** Based on your experience with the Internet Simulator today, respond to the questions below (also on Code Studio).

- Describe the relative benefits of routing over a broadcast style of communication. Is routing traffic more secure than broadcasting? Justify your answer.
- Can you know in advance the path a message will take between you and another computer on the Internet? Justify your answer

### Additional Reflection and Discussion

- An Internet service provider (ISP) just purchased all the routers in your area. What types of things is this ISP capable of doing? Are you comfortable with this arrangement?