

JA Mind Challenge

Learning and Earning!

Under the Sea

For Challengers
in grades

4-5





JA Mind Challenge

Learning and Earning!

Under the Sea





**Junior
Achievement[®]**
of the Eastern Shore

This Mind Challenge belongs to: _____

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Challenge Tracker

Directions: Each time you finish a challenge, put a check on your tracker. Keep going until you have all ten challenges complete!



Welcome to the Reef! I'm Caleb the Crab, and this is my friend Sasha the Squid!

**The Reef is our community!
A community is a group of people living or working together in the same area.***



People in communities might go to the same schools, shop in the same stores, and do the same things.* We're challenging you to help us learn more about our community! We'll learn about:

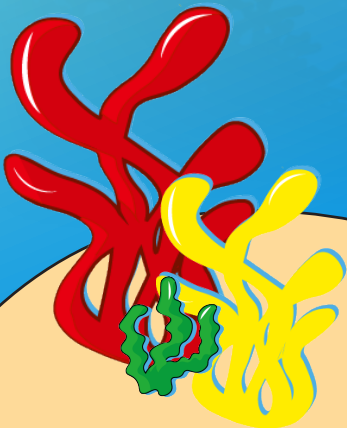
- Making Choices
 - Goods and Services
 - Needs and Wants
 - How to save money, and we're even getting our first job!
- *According to study.com

Challenge #4

Challenge #2

Challenge #1

Challenge #3



Start!

Finish!

Challenge
#10

Challenge
#8

Challenge
#9

Challenge
#6

Challenge
#7

Challenge
#5

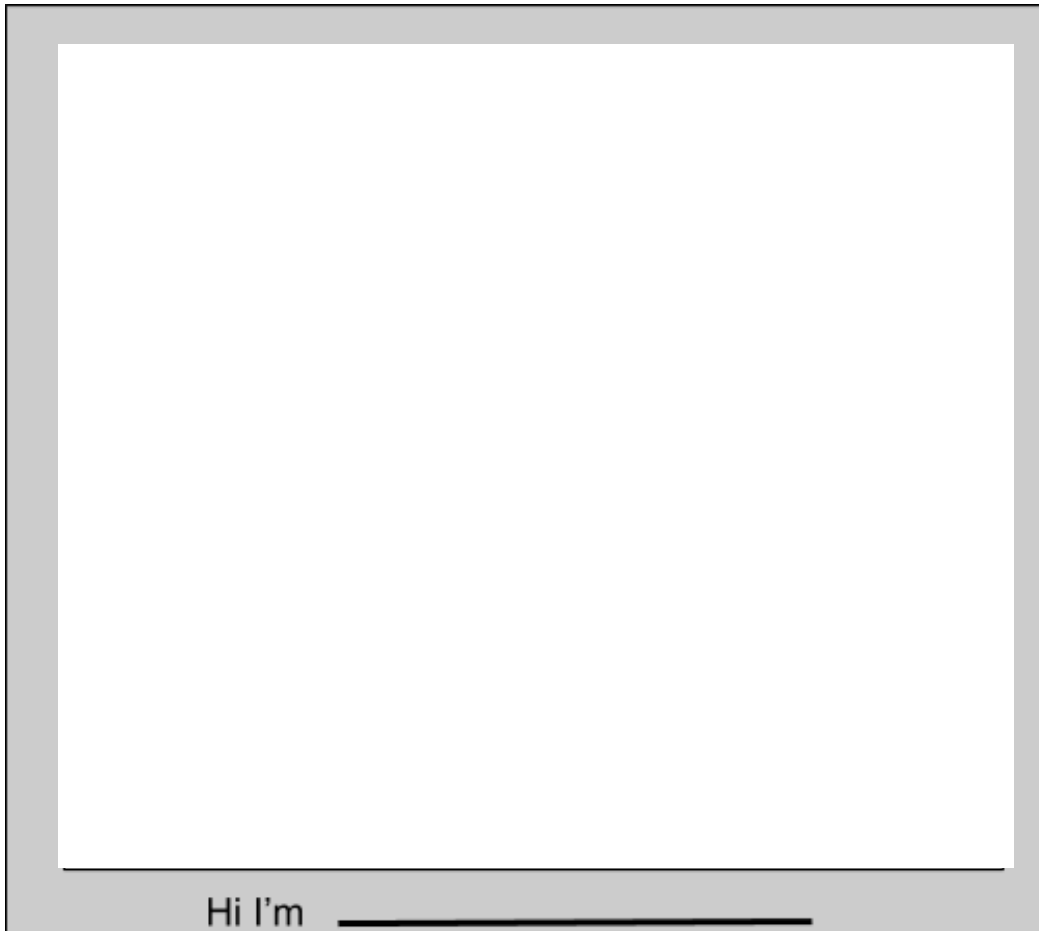
You're almost there!
Keep going!



Challenge #1: All About Me!

Directions:

Draw a picture of yourself. Write your name under your picture, and list 3 skills you do well.



Hi I'm _____

3 skills I do well are...

- 1 _____
- 2 _____
- 3 _____



Challenge: Share 3 things you do well!

Challenge #2: My Interests!

Directions:

Your interests are the things you like and enjoy doing. What are you interested in? What do you do in your free time? Do you enjoy music, talking with friends, helping others, or selling things? Here is a list of “interests.” Check three or four boxes that best describe you.

Interests	Likes	Possible Business Idea!	<input checked="" type="checkbox"/>
Music	Playing an instrument, singing	Music store, singing coach, performer	<input type="checkbox"/>
Storybooks	Reading, writing, poetry, short stories	Writer, publisher, online bookstore	<input type="checkbox"/>
Service work	Helping others	Child care, counselor, lawyer	<input type="checkbox"/>
Animals	Caring for animals	Dog walking, pet grooming, vet clinic	<input type="checkbox"/>
Science	Discovering new facts and ideas, inventing things	Inventor, engineering company	<input type="checkbox"/>
Computers	Coding, programming, researching online	Electronic games, movie animation company	<input type="checkbox"/>
Tools and Machinery	Creating, making, and fixing things	Fix-it shop, crafter, furniture maker	<input type="checkbox"/>
Food and Cooking	Creating fun foods	Drink stand, food truck, bakery	<input type="checkbox"/>
Working Outside	Growing things	Landscaping, garden shop, veggie stand	<input type="checkbox"/>
Arts	Dancing, painting	Dance company, artist	<input type="checkbox"/>
Sports	Playing football, basketball, baseball, soccer, track and field	Coach, sports broadcaster, personal trainer, sporting goods store	<input type="checkbox"/>
Other Interests			<input type="checkbox"/>

The business I would like to create: _____

Challenge: Interview an entrepreneur!

Challenge #3: Career Types!

1. One way to categorize careers and occupations is to group them into types of careers by interests.

2. Look at the career types on the next page. Each of these career types represents a category of jobs related to people's interests.

- A **people career** involves working with others and using compassion and communication skills. People careers include counselor, day care provider, salesperson, teacher, and psychologist.
- A **hands-on career** involves working with your hands making, fixing, or doing things. Some examples of this type of career would be carpenter, firefighter, locksmith, plumber, and biofuel technician.
- An **ideas career** involves coming up with new ideas or thinking about solutions to complex problems. Examples would be detective, aerospace engineer, inventor, and writer.
- A **data career** involves working with numbers and information. People who like to work with numbers and computers may enjoy jobs such as accountant, bank teller, computer programmer, and website developer.

3. Many jobs feature a combination of career types. For example, a chemist works with laboratory equipment and chemicals but also has to solve problems with innovative ideas.

4. All careers are worthwhile, and we can each use our own skills and interests to find the one that best fits our strengths. The career types are shown in gears to emphasize the fact that different careers all work together to keep a community running smoothly.

Challenge #3: Career Types! cont'd

PEOPLE

These jobs involve working with people most of the time. People who enjoy counseling, teaching, helping those in need, and managing others would enjoy jobs in this career type.

IDEAS

These jobs involve coming up with new ideas or thinking about solutions to complex problems. People who enjoy doing science experiments, inventing new things, or coming up with new ways to sell a good or service would enjoy jobs in this career type.

DATA

These jobs involve working with numbers and information. People who enjoy solving math problems and working with and gathering information would enjoy jobs in this career type.

HANDS-ON

These jobs involve working with things, such as machines and tools. People who enjoy making or building things, fixing things that are broken, and working outdoors would like jobs in this career type.

Challenge #3: Career Types! cont'd

Directions:

Sort the career choices into their career type groups by writing them on the lines. Think of one of your own for each group and write it in.

PEOPLE

IDEAS

DATA

HANDS-ON

Challenge #3: Career Types! cont'd

Directions:

Complete the Interests and Skills survey. Think about the types of careers that interest you. Consider sharing your career ideas with a teacher, friend, or family member.

1. List up to six things you like to do. These are interests. Examples of interests include playing sports, writing, acting, singing, helping others, working with numbers, fixing things, researching, baking, sewing, making crafts, teaching, coding, drawing, or playing a musical instrument.

2. Review your interests above. Circle the interests for which you also have a high level of skill.

3. Look at the interests that are circled above. Which of these activities is your favorite among those that are circled? (If none are circled, write down the interest you like the most.)

4. To which of the four career types (people, ideas, data, or things) does the activity listed in #3 belong?

5. What other jobs that belong to this career type might you enjoy doing?

Challenge: Talk about the jobs/careers in your family!

Challenge #4: Be an Entrepreneur!

Directions:

An entrepreneur is someone who sees a need in their community and creates a business to fill that need. Entrepreneurs have characteristics that help them be successful. Match the following characteristics to their definition, highlight or circle the characteristics you have!

Characteristics:

Definitions:

1. Bold _____
2. Strong Presenter _____
3. Team Player _____
4. Confident _____
5. Creative _____
6. Determined _____
7. Positive Attitude _____
8. Persistent _____
9. Motivated _____
10. Innovative _____
11. Humble _____
12. Risk-taker _____
13. Organized _____
14. Problem Solver _____

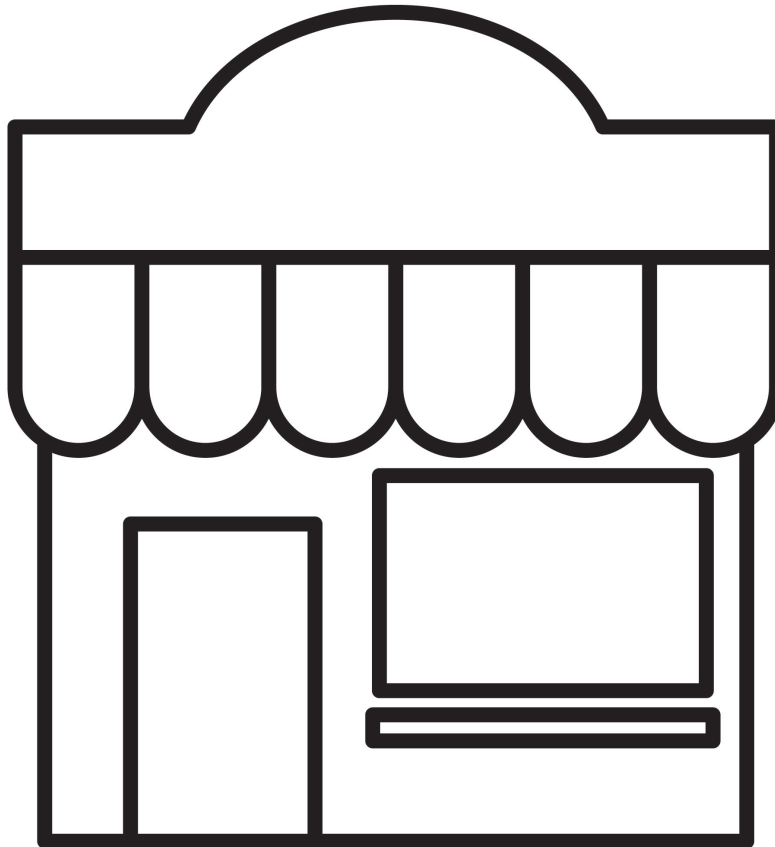
- A. Does not give up easily
- B. Cheerful and upbeat
- C. Determined to succeed
- D. Comes up with good ideas
- E. Acts without being asked
- F. Gets the job done
- G. Works well with others
- H. Finds new ways of doing things
- I. Willing to listen and learn
- J. Finds solutions
- K. Accepts some risk
- L. Speaks well in front of others
- M. Not afraid to express new ideas
- N. Works with a plan

 **Challenge: Be an entrepreneur!**

Challenge #5: My Business Plan!

Directions:

Color and give your business a name! Businesses are extremely important to our communities. Then answer the questions below about your new business.



Think Tank:

- What are your ideas for your business?
- What resources do you need? Think employees, computers, buildings, etc.
- What will you sell/make?
- Who will work with you?
- When will you do your work?
- How would you advertise your business?

Challenge: Create a business plan!

Challenge #6: A Business Cost!

1. Think of the costs of doing business. When running a business, business owners must pay for many kinds of operating costs.

Possible operating costs would be:

- Advertising—\$4.00, Getting the word out about the goods or services offered by the business
- Health Care—\$2.00, Providing insurance to prevent and treat illnesses among employees
- Philanthropy—\$2.00, Donating money or services to increase the well-being of people in the community
- Professional Services—\$4.00, Using services offered by lawyers, insurance agents, and accountants
- Taxes—\$5.00, Paying property taxes and payroll taxes
- Recycling and Trash Disposal—\$2.00, Processing used materials and removing waste
- Rent—\$8.00, Paying for the use of property
- Salaries—\$8.00, Paying for the services of workers
- Supplies—\$5.00, Buying materials to produce goods or supply services (capital resources)
- Utilities—\$7.00, Paying for water, cable, and electric service.

2. Look at the “My Business Costs” worksheet on the next page.

- Brainstorm seven business costs you think your business will have in addition to taxes. Write them down on the lines provided under question 1.
- Next, add up all eight business costs and write down the total under total operating costs.
- Imagine four goods or services that your business would offer.

3. Using the formula shown on the worksheet, divide the total operating costs by the total number of items for sale to determine the average cost per item.

Challenge #6: A Business Cost! cont'd

Directions:

Follow the instructions to complete the worksheet.

1. Set an appropriate (higher) price on what you think will be popular or for goods that require more resources than normal.
2. Set an appropriate (lower) price on less desirable or less costly goods.
3. Calculate the amount of revenue by multiplying the price for each item by the quantity to be sold.
4. Subtract the total operating costs from the revenue.

The Goal: Businesses' revenue should exceed their costs so that a profit is earned.

If you were to run a business, what costs would you have? What goods or services would you produce? What would you charge for those goods and services?

1. Using the list that you brainstormed, choose seven business costs. These are services or resources for which your business might need to pay. An eighth cost, taxes, has been done for you.

_____	<u>Taxes \$5.00</u>	_____	_____
_____	_____	_____	_____

2. Think of four goods or services your business would sell.
3. Divide your total operating costs by the total number of goods to find the average price per item.
4. Price what you think will be popular or goods that require more resources above the average cost per item.
5. Price less desirable or less costly goods below the average cost per item.
6. Calculate the amount of revenue by multiplying the price for each item by the quantity, then add all the amounts.
7. Subtract the total operating costs from the revenue to be sure your business will make a profit.

Challenge #6: A Business Cost! cont'd

Use directions #2 through #7 on page 17 to complete the chart below.

4 business goods or services your business would sell:

$$\underline{\quad 6 \quad} \times \underline{\hspace{2cm}} =$$

$$\underline{\quad 10 \quad} \times \underline{\hspace{2cm}} =$$

$$\underline{\quad 4 \quad} \times \underline{\hspace{2cm}} =$$

$$\underline{\quad 20 \quad} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Total _____

Total Revenue _____ **- Total Operating Costs** _____
= Profit _____



Challenge: Explore the cost of business!

Challenge #7: Interest in Your Favor!

Directions:

You want a new mountain bike that costs \$400. You need to decide if you want to buy the bike now using credit, or wait and save the money to buy the bike, meanwhile earning interest on your savings. You know that you can afford about \$16.00 a month from your allowance and lawn jobs.

Earning Interest: You decide to save \$16.00 a month to buy the bike. Every month you put \$16.00 into a savings account, you earn 0.9% interest, compounded monthly.

- How many months will it take to save \$400? _____
- What will the balance be at the end of the savings period? _____
- How much will you earn in interest? _____

Use the calculators to help you answer the questions.

Compound Interest Calculator	
Current Principal:	\$16.00
Annual Addition:	\$192.00
Years to Grow:	2
Interest Rate:	0.9%
Results	

Paying Interest: You decide to buy the bike now using a credit card. You will pay \$16.00 a month to the credit card company. The company will charge 18% interest to borrow the \$400.

- How many months will it take to pay off the loan?
- How much will you pay in interest?

Credit Card Calculator	
Current Debt:	\$400
Interest Rate	18%
Your Monthly Payments	\$16
Results	0.9%
Months to Pay:	32
Total Payments	\$505.12

Challenge: Save for something you want!

Challenge #8: Welcome to My Smart House!

Directions:

Entrepreneurs are innovators and help solve problems. What is something you would like to invent that would help around your house? We have apps that allow us to lock our front door, we have machines that wash our clothes, what else would make your or your family's life easier at home? If you are able try to build a prototype of your gadget, out of legos or whatever you have at home!



Think Tank:

- **What would you call your gadget?**
- **How does it make chores or other activities easier?**
- **How would you advertise this new gadget?**
- **What can you do to make sure orders are filled on time if everyone LOVES your product?**
- **How can you communicate with customers if there is any issues getting the product to them?**

 **Challenge: Invent a gadget!**

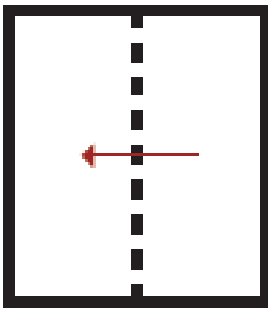
Challenge #9: Be an Engineer!

Directions:

Build a paper airplane! Below are the steps to building a traditional airplane. Think of ways that may help your plane go faster, further or higher! Maybe you should add aluminum foil or fold the paper differently. Use your engineering skills to find the key to the perfect plane.

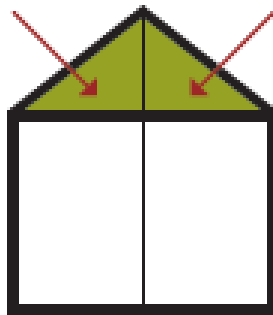
Step One:

Fold an 8-inch by 11-inch sheet of paper in half the long way to form a crease. Unfold.



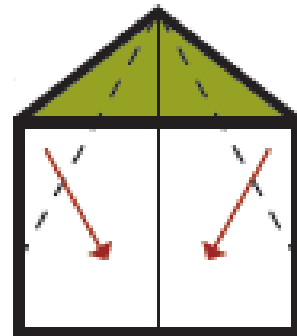
Step Two:

Fold down the top corners toward the centerline to form a triangle at the top.



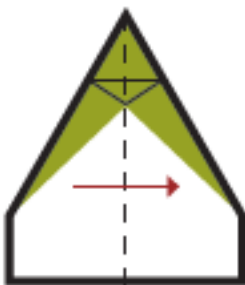
Step Three:

Fold the two edges in toward the centerline.



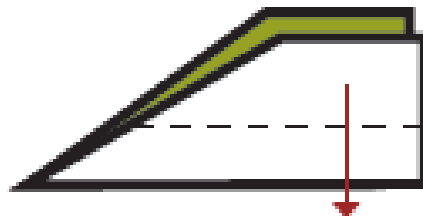
Step Four:

Fold the paper in half along the original center crease to form a valley. Rotate the paper 90 degrees.



Step Five:

Create a wing crease that begins at the nose.



Helpful Hint:

Bend up the trailing edge of the wings for lift if the plane dives nose first.

Want to learn more about engineering? Learn with STEMBot: <http://educgames.ja.org/jaournation/indexDeskTop.html>

Challenge: Make a paper airplane!

Challenge #10: A Region's Market!

Directions:

The chart below shows how many pounds of produce each of the farmers sold from April to September. Answer the questions below based on the chart.

	April	May	June	July	August	September
Farmer Jake	120	125	250	100	250	300
Farmer Samar	495	320	250	170	160	210
Farmer Chris	500	670	320	450	555	330
Farmer Ravi	500	745	290	450	320	800

Who sold the least amount of produce in April? _____

How much produce was sold in total in August? _____

Who sold the most produce from April to September, Chris or Ravi? _____

What was Samar's average sale per month over the six months? Remember the average is the total amount of produce divided by how many months.

What kind of resources does each farmer need in order to grow the produce?

Answers:
1. Jake 2, 1,285 pounds 3. Ravi 4. 1,605 / 6 = 267.5 pounds per month 5. Natural resources: land, soil, fertilizer, seeds. Human resources: people to harvest the produce, plant seeds. Capital resources: Tractors, building



Challenge: Plant a flower, herb, or vegetable!

Doodle Page!

Directions: Draw something fun that you would see under the sea!

CONGRATULATIONS!

YOU HAVE COMPLETED THE JA MIND CHALLENGE!

THANK YOU TO OUR SPONSORS!



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