



## Ocean Careers and Holland Games

### Timeframe

45-60 minutes

### Target Audience

Grades 4th- 12th

### Suggested Materials

- Ocean Careers and Holland Games (Powerpoint)
- Ocean Career Cards (12 or print more for more students)
- Materials for each Holland Game
  - Make It Fast (Realistic)
  - 20 Questions (Investigative)
  - Pictionary (Artistic)
  - Taboo (Social)
  - Sell It! (Enterprising)
  - Line it Up (Conversational)
- Internet Access (for each student group to look-up their career card)  
Access to <https://nautiluslive.org/people>

### Description

In this lesson, students will learn about their interests related to the world of work using Holland Codes and example ocean science careers.

### Outcomes

Students will:

- Learn their Holland Code
- Learn about their career interests and ocean careers
- Discuss how ocean careers relate to science, technology, engineering and math

### Guiding Question

How can Holland Codes help us think about ourselves, the world of work, and ocean careers?

### Background Information

Dr. John Holland's theory is that people and work environments can be loosely categorized and matched based on personality traits, preferences, and interests. The Holland Code is three letters in a particular order, with the first letter, or trait, holding more weight than the following ones. For example, if your code was Conventional (C), Social (S), Realistic (R) your code would be CSR. This would mean that your conventional trait is more prevalent than your social trait which is more prevalent than your realistic trait. The six Holland Codes are Realistic (the do-ers), Investigative (the thinkers), Artistic (the creators), Social (the helpers), Enterprising (the persuaders), and Conventional (the organizers).

It is important to know that your Holland Code can change based on someone's life experiences, changing interests, or many other factors. The strength in using Holland Codes is that these help youth think about the world of work related to who they are at that moment in time and what they may want to do later in life. For older students, Holland Codes may be helpful for youth who want to think about their college majors or creating a career path for after high school.



### Contact:

SMILE Program

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<http://smile.oregonstate.edu/>

## Procedure

1. Have the Powerpoint displayed and materials needed for each game at hand. We recommend low-tech and low-material games that can be run in quick order.
2. To introduce the lesson, ask students if they have thought about their lives after school and where they may see themselves working in the future. Tell them that learning about themselves can help them to think about what jobs, careers, or college majors they may want to pursue in the future. To help them think about this, tell them they will be using Holland Codes. A Holland Code is two to three letters with each letter relating to the Holland personality code.
  - a. For example, if your top three games were tied to Realistic, Investigative, and Conventional, your Holland personality type would be RIC, and you would explore professional opportunities with a Holland Code combining of R, I, and/or C (e.g. RC, IR, RIC, CRI, etc.).
3. Slide 1 – Describe each Holland Code and tell them they will be playing six games that relate to each code and they need to decide which three were their favorites at the end.
  - a. **Realistic** (the do-ers) – These folks work with their hands, are active at their work place. Athletes, technicians, and engineers are in this category.
  - b. **Investigative** (the thinkers) – These folks are inquisitive, curious, and like to explore ideas. Food scientists, Oceanographers, and Veterinarians are in this category.
  - c. **Artistic** (the creators) – These are the creators that make tangible things in their workplace. Artists/Actors, Illustrators, and Data Visualizers are in this category.
  - d. **Social** (the helpers) – These are folks that work with others, and are outgoing and caring. Nurses, Teachers, and Community Organizers are in this category.
  - e. **Enterprising** (the persuaders) – These folks are optimistic, extroverted, and can sell things. These folks can be entrepreneurs, conservation advocates, and politicians.
  - f. **Conventional** (the organizers) – These folks are well-organized, methodical, and can work well within a system. Accountants, Data Analyzers, and Safety Crews are in this category.
4. The Games - tell them they will be playing six games that relate to each code and they need to decide which three were their favorites at the end. Each game relates to one code. They can write down and rank the games/codes as they go, or rank them all at the end. You can time each activity and see which groups get done first to make sure you quickly go from activity to activity.
  - a. **Realistic** (the do-ers) – This game needs to be something they do with their hands, such as making a shape with tangrams, stacking cups in a particular order, or any other activity that makes them build something quickly (e.g. stack

## Next Generation Science Standards

Appendix C: College and Career Readiness

Appendix E: Disciplinary Core Ideas

Appendix F: Science and Engineering Practices

Appendix G: Crosscutting Concepts

all their chairs).

- b. **Investigative** (the thinkers) – This game needs them to ask each other questions to learn about each other. We suggest 20 questions and the instructor can have one person from each group or pair come up and be given a topic (e.g. favorite -----) that their partner has 20 questions to guess.
  - c. **Artistic** (the creators) – Pictionary, similar to the previous game, the instructor gives a topic to each pair or group and they play a quick round of Pictionary.
  - d. **Social** (the helpers) – Again, as before, the students in pairs or groups play a quick round of Taboo.
  - e. **Enterprising** (the persuaders) – Have students in pairs or groups create a jingle or a 5-7-5 Haiku for their favorite product or game and then share it with classmates.
  - f. **Conventional** (the organizers) – Students need to do something orderly and systematic for this game. Have the students line up by birth month without talking, or something else that is orderly and systematic.
5. Once each game is complete, have students rank their top three and record it on the Ocean Careers worksheet.
  6. Then, give each student, pair, or group a career card and have them learn about that career on <https://nautiluslive.org/people>.
  7. Once each group has learned about their career, ask them if that career fits into their code, and share out why or why not.

## Wrapping Up

Following this activity, you can have students complete a self-directed search that will let them take a survey to get their Holland Code (may be different from the one developed during the games) and they can compare their two sets of three codes to see if they are the same, and then they can explore careers and college majors further.

Holland Code Survey for Middle School students and job profiler. This survey sorts professions based on job requirements (e.g. degree, years of experience, expertise, etc.)

<https://www.mynextmove.org/explore/ip>

Holland Code Survey for High School students and job profiler. This survey links jobs and college majors offered at Rogue Community Colleges in Oregon.

<http://www.roguecc.edu/counseling/hollandcodes/test.asp>

## Scaffolding/Extensions

### Alignment to Next Generation Science Standards

Appendix C of the NGSS draws connections between the eight science and engineering practices, the disciplinary core ideas, and crosscutting concepts. To clearly illustrate this for youth, when they share out their "ocean science career card" the instructor can ask them to discuss how

each profession uses aspects of science, technology, engineering, and math in their workplace. This can draw student attention to what the "human enterprise" of science and engineering look like in the "world of work."

<https://www.nextgenscience.org/sites/default/files/NGSS%20Appendix%20C%20Final%20072613.pdf>

### **K12 Resources by Grade**

California careers has developed K12 lesson plans and units that help youth think about careers after they graduate. These resources can be used to help youth learn about jobs, careers, and their interest further.

<http://www.californiacareers.info/#?Lesson%20Plans>

### References

1. This uses Nautilus Live's meet the team career page. Nautilus Live also has additional educational resources, live streams, and opportunities for students and teachers to interact with Nautilus Live professionals.  
<https://nautiluslive.org/people>
2. For information on John Holland and Holland Codes see the link below.  
<https://www.careers.govt.nz/resources/career-practice/career-theory-models/hollands-theory/>  
[http://www.wiu.edu/advising/docs/Holland\\_Code.pdf](http://www.wiu.edu/advising/docs/Holland_Code.pdf)
3. This lesson was adapted from career exploration activities developed by Project Hope at the University of Iowa.  
<https://education.uiowa.edu/projects/project-hope>

This lesson was developed as part of the Regional Class Research Vessel (RCRV) Program and SMILE at Oregon State University.

<https://ceoas.oregonstate.edu/ships/rcrv/>

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<p><b>SHIP COMMUNICATIONS</b>  Microphone  Camera  Social Media</p> <p>Communications specialists on research vessels tell the story of the expedition and share it with scientists, teachers, students, and families.</p>	<p><b>CREW</b>  Steering  Captain  Safety</p> <p>The crew of the ship is responsible for steering and maintaining the ship for scientific research, while also keeping the group safe at sea.</p>	<p><b>DATA ENGINEER</b>  Sensors  Data  Computers</p> <p>Data Engineers record and archive all data recorded on the expedition to share it with other researchers and scientists back on land.</p>
<p><b>DATA LOGGER</b>  Seafloor Dive  Scientists Goals  Observations</p> <p>Data Loggers keep track of all seafloor observations and samples collected, coordinating with the scientists to ensure all science goals are completed and logged.</p>	<p><b>EXPEDITION LEADER</b>  Goals  Teamwork  Sailor</p> <p>Expedition Leader works closely with team leads (Lead Navigator, Lead ROV Pilot, Communications Lead, Lead Video Engineer, and Lead Scientist), and the crew to complete the goals of the expedition.</p>	<p><b>NAVIGATOR</b>  Location  Maps  Seafloor</p> <p>Navigator's main task is to ensure the ship is in the correct location for scientific operations. The navigator acts as a communications liaison between crew, ROV pilots and science team.</p>
<p><b>ROV PILOT</b>  Robotics  Joystick  Sampling</p> <p>ROV pilots are engineers who maintain and control the large remotely operated vehicles (ROVs) used to explore the seafloor and water column.</p>	<p><b>OCEAN SCIENTISTS</b>  Research  Exploring  Test Hypotheses</p> <p>Scientists come to work on research ships from many different universities, government agencies, or organizations. Most are young researchers or students gaining practical experience in conducting research at sea.</p>	<p><b>SEAFLOOR MAPPER</b>  Map Makers  Dive Targets  Sonar</p> <p>Seafloor mapping is an essential step to ocean exploration. Seafloor mapping is used to inform future dive targets so the team can safely operate ROVs in unexplored regions. Less than 12% of the seafloor has been mapped in high resolution.</p>
<p><b>VIDEO ENGINEER</b>  HD Cameras  Editing  Audio</p> <p>Video Engineers manage the video feeds from the remotely operated vehicles (ROVs) underwater and cameras around the ship. High-definition video is the critical to science teams allowing them to analyze the seafloor.</p>	<p><b>OCEAN ADVOCATES*</b>  Fundraising  Non-profit  Policy and Education</p> <p>These professionals fight for environmental changes through advocacy, policy, and education. Research Sylvia Earle of Mission Blue or Robert Ballard of Ocean Exploration Trust and consider if you would like to work with them.</p>	<p><b>TECHNOLOGY INNOVATORS*</b>  Creating/Building  Selling  Testing</p> <p>These professionals move ocean research forward through inventing new research tools. Look up, <a href="http://nautiluslive.org/tech">nautiluslive.org/tech</a> and consider what one of these tools you would want to work on. Then try to find a person at Nautilus who work on that tool.</p>

## Group Members

Name: \_\_\_\_\_ Holland Code: \_\_\_\_\_

Name: \_\_\_\_\_ Holland Code: \_\_\_\_\_

Name: \_\_\_\_\_ Holland Code: \_\_\_\_\_

**Note:** Your Holland code is the first letter of the top three games you liked the most (e.g. **ISA** for Investigative, **S**ocial, **A**rtistic)

Get 1 Ocean Career card from your teacher. Go to <https://nautiluslive.org/> and click on “The Team”. When look at the Team, find the profession that matches your card and read more about it. Then select a specific person to research who has that job with Nautilus Live. IF you card is for Ocean Advocates or Technology Innovators, follow the specific directions on that card. Record what you find below:

**Who was the person you researched and what career do they have?**

**What do they do related to ocean science research?**

**Are you interest in a career like theirs? Why or why not?**

**What type of education and experiences do you need to work in their profession?**

**Does their career match your Holland code? Why or why not?**