Khaled bin Sultan Living Oceans Foundation

STANDARDS

- **CCSS**: RST.9-10.7; W.9-10.3, 4; W.11-12.3, 4; SL.9-10.1; SL.11-12.1
- **OLP**: 7.B, 7.B.1, 7.B.2

ONLINE CONTENTS

- *Meet A Scientist – Samantha Clements* Video
- *Meet A Scientist – Alexandra Dempsey* Video
- *Meet A Scientist – Professor Sam Purkis* Video
- *Meet A Scientist – Captain Philip Renaud* Video

MEET A SCIENTIST

This lesson is a part of the *Meet a Scientist* unit, which investigates the careers of various marine scientists. Below is a summary of what is included in the entire unit.

UNIT CONTENTS

A. Background Information

- What Does a Scientist Look Like?
- Samantha Clements
- Avarino, Clark, Cousteau, Damanaki
- Alexandra Dempsey
- Earle, Lubcheco, Paine, Pauly
- Sam Purkis
- Roughgarden, Trench, Turner, Veron
- Philip Renaud
- More Scientists

B. Lessons

Meet a Scientist

- An online activity that explores different careers in marine science.

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LESSON 1 MEET A SCIENTIST

INSTRUCTIONS:

1. When you think of a scientist, what do you imagine? Draw whatever pops into your head in the space below. Include the scientist's surroundings.

2. Watch the videos and read the information about marine scientists on the *Meet a Scientist* webpage: *https://www.livingoceansfoundation.org/education/portal/course/meet-a-scientist/*.

INSTRUCTIONS: Answer the questions below.

1. Of the Science Team that was interviewed, which one do you think gave the best advice? Why did you choose this one?

2. How can you apply this advice to your own life?

3. Do an internet search on two of the scientists described on this webpage. Write three new facts you have discovered about each one.

   Scientist #1 Name: _____

   a. _____

   _____

   b. _____

   _____

   c. _____

   _____

   Scientist #2 Name: _____

   a. _____

   _____

   b. _____

   _____

   c. _____

   _____

4. Name at least three different interests or areas of knowledge the scientists profiled here use to perform coral reef research.

5. Draw yourself as a marine scientist in the space below. Be sure to include details of the surroundings you would like to work in.

6. What type of science work are you doing in the picture?

7. Where are you doing your work?

8. How has your view of scientists changed by learning about these marine scientists?

9. Name two reasons being a scientist sounds like a positive thing to you and two reasons it might be negative.

   Positive:

   Negative:

10. Based on what you have learned about these scientists, give three examples of things that you would do to better prepare for your future (even if it is not a science career).

VIDEO SCRIPTS:

Samantha Clements, Master's Candidate in Biology

"*I'm a student at Scripps Institution of Oceanography in Southern California. I was born and raised in Southern California, so I've always been very close to the ocean and the beach*."

Beginnings
"*When I was really young my dad used to take me to the tide pools all the time, and I loved just exploring. I've always been an explorer. I remember a specific time when I was about 7 years old and I had gone to Sea World, or somewhere like that, and I told everyone, 'I want to be a marine biologist when I grow up.' I've always loved the ocean, so it's something that I've known since a very young age*."

Getting Started
"*I was on a path that was pre-med. I decided I really didn't like any of the classes that I was taking, so I talked to a college counselor and she said, 'You know, I think you'd be much more interested in something more like an ecology major.' And so I did that. I took classes regarding oceanography and found my passion*."

Inspiration
"*Some of my biggest inspirations growing up were the Crocodile Hunter, Steve Irwin. I always watched that show when I was growing up. Also, people like Jacque Cousteau and Jane Goodall, people that go out of their way to explore and discover things about the earth that everybody's curious about. Some of the most inspirational people in my life have been teachers, especially during the high school years when you're really developing and deciding who you are and what you want to do with your life. So I would love to get into teaching someday, I think*."

Taking Stock
"*Right now, I'm a master's student and it's going well. I'm making good progress. I'm studying the diets of fishes in Hawaii. It's really amazing to have the opportunity to come out with foundations like the Living Oceans Foundation to get research experience all over the world, and get more experience diving and see reefs in different environments*."

Advice
"*My biggest piece of advice would be if you hear about an opportunity or you meet somebody who's doing something that you find interesting, to keep in contact with that person and really go for those things that you want, because you'll never know what it is that you want to do until you try it. And the best way to get a chance to try these things is to meet people who are doing them*."

Alexandra Dempsey, Coral Reef Ecologist at the Khaled bin Sultan Living Oceans Foundation

"*I'm the Coral Reef Ecologist for the Living Oceans Foundation, and I conduct benthic surveys and photo transects, specifically looking at any organism, including sponges, algae, corals that are actually living on the bottom of the sea floor. Not only is it a full body workout, but mentally it can be very taxing because it's not pleasure diving. We don't go down there with a camera and just shoot pictures of pretty fish and of pretty corals*."

Beginnings

"I first became really interested in science, particularly field biology, when I was a little girl growing up on the coast of Florida. Going to the beach every summer really getting your hands dirty, as it where – in the water, in the sand, on the beach—looking at different critters, different shells, and just being really fascinated by it. And really wanting to know more about the little creatures that I was finding on the beach shore."

Getting Started

"*In high school, I always focused on the math and sciences. Then going on to college, I always took classes that would give me a type of liberal arts study, where I was able to learn biology, chemistry, and physics; so I could then focus on my Master's and my Doctorate on what I am really passionate about and that was marine science*."

Inspiration

"*For me there's two women scientists that really stick out to me – of course, Sylvia Earle, 'Her Deepness.' She really was a pioneer for women in the sciences, specifically in marine biology. Dr. Eugenie Clark or the 'Shark Lady,' as she's referred to, was really a trailblazer in shark biology and a lot of the different types of shark behaviors.*"

Taking Stock

"*It's something I've always wanted to do. I'm doing my dream job. I always wanted to be a marine biologist since the first time I can remember. You hear a lot of people say, 'I really wanted to be a marine biologist,' but they didn't quite have the opportunities or know the right path to take in school. I'm very lucky. I started working for the Living Oceans Foundation as a volunteer at the beginning of the Global Reef Expedition as an entry-level research assistant and graduate student. I slowly worked my way up and after I finished my Master's, they offered me a position as the Coral Reef Ecologist here at Living Oceans*."

Advice

"*What makes a candidate outstanding is experience. The more field experience you have, the more missions that you go on (fieldwork missions); the more time in the water, the more dives that you have—that type of thing in a CV definitely shines. It's hard to sometimes see the big picture when you're doing one dive at a time, one day at a time, one transect at a time. How is this actually making a difference? The critical part is when you put all the information together and you release these reports, and then you go back into the communities that live near the reef system and use it as their livelihood. That's their food, their employment, everything. When you are able to go back to those people and say 'This is what we found. These are some of the habits that maybe you should change. These are some of the areas that maybe you shouldn't fish at or you shouldn't build on.' Those people are so incredibly grateful that we're able to give them a plan or a direction to go in to conserve and better use their resources*."

Professor Sam Purkis, Halmos College of Natural Sciences and Oceanography NOVA Southeastern University

"The focus of my work is primarily making very large-scale maps of coral reefs. The problem with coral reefs is they're obscured from casual view. The majority of my work is using high technology satellites, and sometimes aircraft, to make maps of coral reefs and to assess their status, and then track them through time."

Beginnings

"I was originally destined to go to art college, following in the footsteps of my dad. Then in my late teens, I was a young lad in the Red Sea as a diving instructor in the mid-90's, and that's when I fell in love with the ocean. From there, I chose to study marine biology and I haven't waivered since then."

Opening Doors

"I became an academic, so I work at a university. I'm very fortunate that I can do research, as well as teaching. Of course, teaching is very important at a university. From my experience, if you want to get ahead in your career, you have to be numeric. It's very good to be capable at maths and know how to use a computer in an advanced way. Also being able to write well helps and that comes from reading a lot."

Taking Stock

"I've been doing this for 15 years. (Videographer: Do you enjoy it still?). I enjoy it still. It's fabulous. To be somewhere like Chagos is a privilege and I couldn't hope for a different job. I'm away a lot in remote tropical locations, idyllic beaches, and coral reefs. I'll be honest, and say that it soon turns into work. You do have to take a step back sometimes, relax, and take stock of your surroundings because it really is a special privilege."

Advice

"You can't just think that you are going to be scuba diving every day, nor are you going to be sitting behind a computer writing computer code every day. You need someone who's got the fire for both and is capable in both arenas. You need a well-rounded individual. A university is a fabulous place to experience lots of different sciences. Visit as many labs and interact with as many professors as you can. Choose something that really interests you because it's hard work. You're going to have to stick with it for years, so you have to develop a fire for your niche subject that you're interested in. Then just go with it. If you persevere, and you remain inquisitive, and if you work hard, you are going to succeed."

Captain Philip Renaud, Executive Director at the Khaled bin Sultan Living Oceans Foundation

"*I think there's a real myth that's propagated about marine scientists and oceanographers just having fun and going out in these tropical places and sitting around in their bathing suits, but it's not like that. It's really hard work and you have to be dedicated to it*."

Beginnings
"*I like to be outside. I like adventure. I ended up going to this camp in Maine. I was 13 years old and I'm on the Allagash Wilderness Waterway in Maine, and it was real wilderness back then. We were on these canoes, and I think that really formed the adventure side of my life. From there, I got this opportunity to go to the United States Naval Academy in Annapolis, Maryland. That just accelerated my adventures, and, in the Navy, the adventures continued. These were all very formative things in my life that led me to this career I'm doing now*."

Inspiration
"*When I was a little kid, it was the Age of Exploration. We had the space program going on and we had these famous astronauts – Buzz Aldrin and John Glenn. We were going to the moon and it was really an exciting time to grow up. Then we had Jacques Cousteau learning about the oceans and scuba diving was a really rare thing back then. I grew up in that environment*."

Opening Door
"*I got involved in oceanography in the Navy. Wow, the things that we did were just amazing. We're mapping the oceans and we're helping submarines. Then I became a specialist in the field of physical oceanography, because I was used to operating on ships and used to dealing with oceanography. It opened up this door to the Khaled bin Sultan Living Oceans Foundation because one of our principal assets is a big research ship*."

Taking Stock
"*I think I have one of the best jobs in the world. The reason it's a good fit for me is because I like to multi-task. I get to do the business parts of the operation. I also get to come out with the researchers and experience it with them. I have a great love of the ocean. I love to scuba dive. It's such an amazing job I have. I would say that the most rewarding thing about my job is that I have a rare opportunity to actually do something good for the world*."

Advice
"*I think you really need to seize opportunities in life, and you'll be amazed at the paths that they bring you down. Health, happiness, and fulfillment really comes from making choices from the heart and the passion that you want. When you start getting these opportunities and one of them looks like maybe a safer path, and one looks a little bit more uncertain, but your heart is in it, I say, 'Go for it.' Take the path that your passion in your heart has*."