Insects: Source 1

Name: _____

Date: _____

Why are so many people scared of bugs?

Dr. Samuel Ramsey - Insect Scientist
Published by Mystery Science - October 2022

Video Transcript:

But here's the thing. Most bugs aren't dangerous at all. Consider this bug. Up close, it might look scary to some, and with a name like dragonfly, it sounds ferocious. Can they bite? Can they sting? But guess what. Dragonflies love to eat. They love eating bugs that you personally might find annoying, like mosquitoes and flies. They're amazing hunters. To catch their prey, they make a little trap with their legs and hold the bugs in place with their mouths.

Oh, and just think about bees. Bees are one insect that probably cause people the most worry. Who wants to be stung by a bee? It might even be tempting to imagine a world where there are no bees, but if that really happened, it would be terrible! Bees are one of the most helpful bugs of all. They help flowers produce seeds and fruit. It's called pollination. So without bees, we wouldn't have many of the beautiful flowers that we love to look at or the foods that we eat, like apples, peaches, strawberries, and melons.

So, many bugs aren't really all that scary. They're helpful. It's no coincidence that a lot of superheroes, like Spiderman and Ant-Man, are named after bugs. In fact, some bugs have incredible skills that almost seem like superpowers.

DocSet ID: 26656

Insects: Source 2

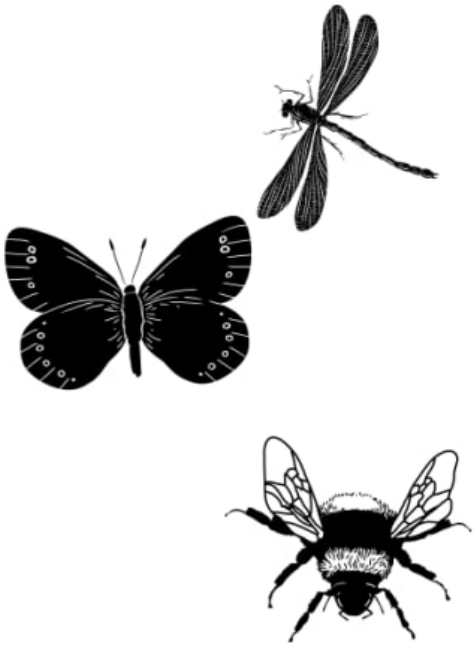
Name: _____

Date: _____

Insect Jobs

By Emily Simon - Published by Discovery Education - January 2024

Pollinators



Many insects are pollinators. When insects go to a flower to drink nectar, they get pollen from that flower on their body. Depending on the insect, the pollen may get stuck in little hairs, on their legs, or even in special pouches on their bodies. Then when that bug goes to another flower, they bring the pollen with them. When pollen gets to a new flower, that flower can produce seeds and fruits. Most of the fruits and vegetables you eat need pollinators to be able to grow!

Bees are one of the most important pollinators. They fly from flower to flower collecting nectar and pollen all day. Many other bugs are pollinators as well. Butterflies, beetles, flies, and even mosquitoes help with flower pollination. All these bugs help plants grow, but they also help humans by allowing us to grow fruits and vegetables. According to the U.S. Department of Agriculture, one out of every three bites of food you eat is thanks to a pollinator!

Food For Others

Many bugs serve as an important food source for other animals. Take mosquitoes for instance. Birds, bats, fish, frogs, and many other animals eat mosquitoes to stay alive. Even larger bugs, like dragonflies, eat mosquitoes. Without mosquitoes, these other creatures would disappear too. Flies are another important food source, helping spiders, birds, frogs, and lizards in their diet. Even some plants, like the venus fly trap, eat flies as an important food source.

Decomposers

Some bugs are decomposers, which means they eat dead plants and animals. If you've ever seen a scrap of food on the ground outside, such as an orange peel, you may have noticed bugs swarming around it. That's because insects like flies, beetles, earwigs, and ants all eat dead plants and animals. This is really important because when a decomposer eats a dead thing, the nutrients can be broken down and eventually returned to the soil. That soil is then full of nutrients that plants can use to grow.

Decomposers help animals in natural habitats as well. They help plants grow, which in turn becomes food for the animals in the area. In addition, decomposers help keep the ground in natural spaces clean and clear, allowing ground animals to be able to easily navigate their environment.

DocSet ID: 26656

Insects: Notes

Name: _____

Date: _____

Some people really don't like insects, or are even afraid of them. It turns out, bugs can be really helpful.

Directions:

- Watch the video to hear from Dr. Samuel Ramsey, an insect scientist.
- Read the source #2 text.
- Use both sources to take notes on two ways bugs are helpful to life on Earth. You can take notes in your own words and include expert quotes.

Insects help plants	Insects help animals

DocSet ID: 26656

Insects: Draft

Name: _____

Date: _____

Directions: Write an informative text about how insects are helpful to plants and animals.

In your writing remember to:

- ❑ Write an introduction
- ❑ Organize your writing into paragraphs
- ❑ Add details and expert quotes
- ❑ Write a conclusion
- ❑ Edit your writing
- ❑ Cite your sources in the bibliography

DocSet ID: 26656

Insects: Draft

Name: _____

Date: _____

If you need more space, continue on a piece of lined paper.

Bibliography

1

 Author: ( Date:)

 Title:  Publisher:

2

 ()

Mystery

Informative | Asteroids

DocSet ID: 26656

5th Grade Informative Writing Rubric

Investigating Asteroids

Name: _____

Date: _____

Standard	1	2	3	4	Feedback
W.5.7, W.5.8 Take notes from two sources (text and video) to determine key ideas. Paraphrase in notes.					
W.5.2.a Write an introduction in 3 parts: hook, background information, and thesis.					
W.5.2.b, W.5.8 Sort notes into subtopics, organize the information, and draft two paragraphs.					
W.5.2.b Use direct quotes to support the subtopics.					
W.5.2.e Write a conclusion that includes restatement of the thesis.					
W.5.8 Provide a list of sources by creating a bibliography.					
W.5.4, W.5.5 Review work to edit and focus on fixing punctuation, capitalization, and spelling.					

1 = standard not met; **2** = standard partially met; **3** = standard met; **4** = exceeds expectations

DocSet ID: 26657

My Informative Writing Checklist

Investigating Asteroids

Name: _____

Date: _____

Writing Process	Learning Goals	Not yet 	Starting to... 	Yes! 
Find information	I can use two sources of information and take notes in my own words.			
Sort	I can sort my notes into subtopics.			
Use quotations	I can support my topic by including quotes from experts in my writing.			
Write a beginning	I can write a beginning that includes a hook, background information, and my main topic (thesis).			
Write an ending	I can write an ending that includes a thesis, a summary, and what I want my reader to do after reading.			
Cite sources	I can provide sources for my research by creating a bibliography.			
Read and check again	I can re-read my writing and fix any confusing parts.			
Fix capitals, spelling, and end marks	I can edit my writing by checking for errors in capitalization, spelling, and punctuation (end marks).			

DocSet ID: 26658

Source 1

Name: _____

Date: _____

V.I.P.

Mystery

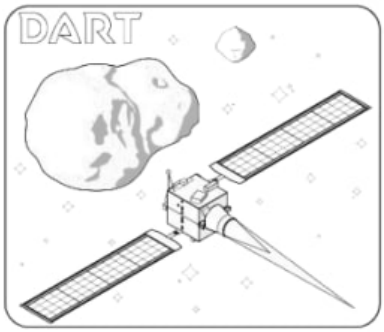
Informative | Asteroids

Operation Asteroid

By: Jeffrey Kluger and Jaime Joyce

Published by: Time For Kids, November 3, 2022

Mission managers at NASA sent a refrigerator-size craft 7 million miles into space. Its job was to punch an **asteroid** in the nose. We should be glad NASA did this. Earth feels a little bit safer now.



The spacecraft is called **DART**. That stands for Double Asteroid Redirection Test. It was launched in November 2021. DART was made to fly out to the asteroid **Dimorphos** and crash into it. Why? To see if the impact could speed up the asteroid's **orbit** around another space rock, **Didymos**. Neither of these asteroids poses a danger to Earth. But in the future, other asteroids might.

The cosmic crash took place on September 26, 2022. For the mission to succeed, NASA calculated that DART would have to change Dimorphos's orbit by at least 73 seconds. On October 11, at the Kennedy Space Center, in Florida, the DART team announced its results: The **collision** sped up Dimorphos's orbit by 32 minutes.

It's too soon to say exactly what the DART results mean for the future. But now we know it's possible to change the **velocity** of an asteroid. Nancy Chabot is on the DART team in Laurel, Maryland. She says the point of programs like DART is to give an asteroid a "little nudge." That would be enough to keep it from colliding with Earth.

If you need more notes space, continue on a piece of lined paper.

DocSet ID: 26660

Source 2

Name: _____

Date: _____

V.I.P.

Mystery

Informative | Asteroids

What is an Asteroid

By: Jessica Stoller-Conrad

Published by: NASA Science Space Place, August 26, 2021

Asteroids are small, rocky objects that **orbit** the sun. Although asteroids orbit the sun like planets, they are much smaller than planets. There are lots of asteroids in our solar system. Most of them live in the main asteroid belt—a region between the orbits of Mars and Jupiter.

Will an asteroid ever hit Earth?

There are no known impact threats, but tiny **meteors** burn up in Earth's **atmosphere** all the time!

Meteors

A meteor is a space rock—or meteoroid—that enters Earth's atmosphere. As the space rock falls toward Earth, the resistance—or drag—of the air on the rock makes it extremely hot. What we see is a "shooting star." That bright streak is not actually the rock, but rather the glowing hot air as the hot rock zips through the atmosphere.

But not to worry!

The meteoroids are usually small, from dust particles to boulder size. They are almost always small enough to quickly burn up in our atmosphere, so there's little chance any of them will strike Earth's surface. But there is a good chance that you can see a beautiful shooting star show in the middle of the night!

If you need more notes space, continue on a piece of lined paper.

DocSet ID: 26661

Bibliography

Name: _____

Date: _____

V.I.P.

Author(s) (Date)

Title Publisher

URL: Web address

1

Jeffrey Kluger & Jaime Joyce ( )

Operation Asteroid

URL: https://www.timeforkids.com/g34/operation-asteroid-g3/?rl=en-760

2

( )

NASA Science Space Place

URL: https://spaceplace.nasa.gov/asteroid/en/ and https://spaceplace.nasa.gov/meteor-shower/en/

3

( )

URL: https://www.youtube.com/watch?v=yxoua8dWolE

4

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URL: https://www.youtube.com/watch?v=vhpzke-2tGU

Mystery

Informative | Asteroids

DocSet ID: 26662

Glossary
Asteroids

Name: _____

Date: _____

V.I.P.

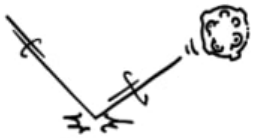
Space Words

asteroid
a rocky object in outer space

atmosphere
air that surrounds a planet

collision
one object hitting or crashing into another object

diameter
the distance across an object



deflect
to cause an object to change direction after hitting something

impact
the force of one thing hitting another

meteor
a small object from space that enters the Earth's atmosphere. They often appear as glowing streaks in the sky or "shooting stars"

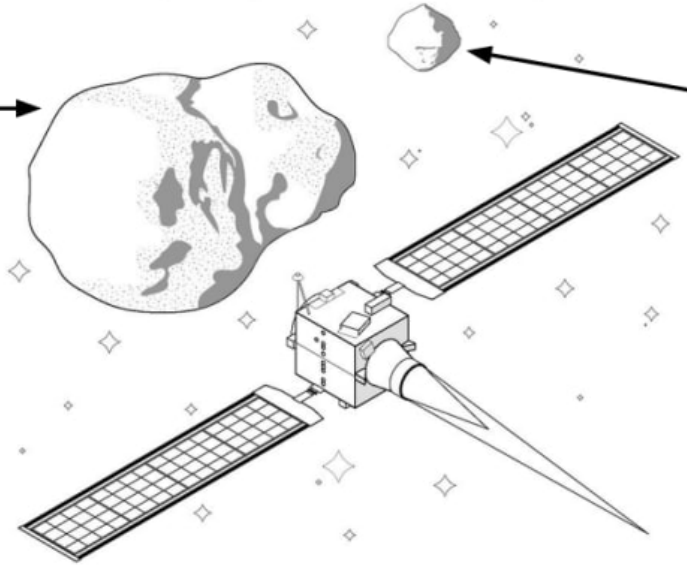
orbit
circling another object, like the Moon around the Earth

velocity
speed

DART Mission

D.A.R.T. – Double Asteroid Redirection Test
A successful attempt by NASA to change the path of two asteroids by hitting one of them with a spacecraft.

Dimorphos
(the name of an asteroid in space) This asteroid was hit by a spacecraft during the D.A.R.T. mission.



Didymos
(the name of a large asteroid in space) This asteroid was part of the asteroid pair targeted during the D.A.R.T. mission.

Mystery
Informative | Asteroids

DocSet ID: 26663

Source 3

Name: _____

Date: _____

V.I.P.

When Was the Last Time an Asteroid Hit Earth?

NASA Asteroid Expert: Marina Brozovic

Published by: NASA, November 3, 2021

Well, the answer depends on whether you're asking about small or large **impacts** . Because Earth gets hit all the time. But luckily for us, the vast majority of these impactors are small and they just burn in the **atmosphere** .

The most significant fireball event in over 100 years occurred over Russia in 2013. We actually got hit by an **asteroid** that was the size of a small building and that one disintegrated about 20 kilometers above the city of Chelyabinsk. And it deposited a fair number of meteorites in the ground and I happen to have a piece of the Chelyabinsk impactor right here in my hand.

But what about big impacts, the ones that leave craters tens of kilometers wide and cause huge amounts of devastation?

We have to go far back in time for such an event and those old craters are not easy to spot because by now they're heavily eroded, they're filled with sediments, or they can be at the bottom of the ocean.

But to keep the long story short, small impacts, they happen all the time, especially given that about 15,000 tons of space dust hits Earth every year. And large impacts are rare, and we're talking millions of years rare. So, when was the last time an asteroid hit Earth?

Probably today, but the odds are it was very small and just burned in the atmosphere.

Mystery

Informative | Asteroids

"

"

Quote by: Role:

"

"

Quote by: Role:

DocSet ID: 26669

Source 4

Name: _____

Date: _____

V.I.P.

Is NASA Really Crashing a Spacecraft into an Asteroid?

NASA Planetary Expert: Nancy Chabot

Published by: NASA, November 17, 2021

Yes, NASA really is crashing a spacecraft into an asteroid. That spacecraft is DART, the Double Asteroid Redirection Test. Now, asteroids hit the Earth all of the time. Luckily, the ones that are big enough to cause widespread damage are pretty rare and none are expected in the near future.

NASA and others are actively tracking asteroids, but also we haven't found all of them yet. So, it makes sense to do this first test to demonstrate if we needed to protect the Earth what might we do. And we should do this test before we need it. That's where DART comes in.

DART is a spacecraft that's about the size of a vending machine. And it has really long solar arrays that stick out. And it's going to be traveling really fast — about 15,000 miles per hour. And it's going to slam into this target asteroid that's about the size of the Great Pyramid. So, slamming this smaller spacecraft into this larger asteroid isn't going to destroy it, but it will deflect it. It's going to give it a small little nudge and that will ever so slightly change that asteroid's future path.

If you wanted to do this, you would want to do it years in advance such that the asteroid and the Earth weren't on a collision course in the future. So, is NASA crashing a spacecraft into an asteroid?

Yes, NASA really is. In the name of planetary defense in order to be ready in case we need it.

Mystery

Informative | Asteroids

"

"

Quote by: Role:

"

"

Quote by: Role:

DocSet ID: 26670

Sorting Mat 1

Name: _____

Date: _____

V.I.P.

Topic sentence

The **NASA DART** mission **protects** Earth from asteroids.

Mystery

Informative | Asteroids

DocSet ID: 26671

Sorting Mat 2

Name: _____

Date: _____

V.I.P.

Topic sentence

Earth's **atmosphere protects** it from asteroids.

Mystery

Informative | Asteroids

DocSet ID: 26671

DART Draft

Name: _____

Date: _____

V.I.P.

Expert quote practice

Introduce an expert:
According to _____
In the words of _____

→ “Expert quote” →

Explain a quote:
This is important because _____
This shows _____
This highlights _____

“DART showed that we do have technologies for diverting an asteroid in space.”

DART Paragraph Draft

Write on the back of this page if you need more space.

Mystery
Informative | Asteroids

DocSet ID: 26676

Atmosphere Draft

Name: _____

Date: _____

V.I.P.

How to Include a Quote

Introduce an expert:
According to _____
In the words of _____

“Expert quote”

Explain a quote:
This is important because _____
This shows _____
This highlights _____

Atmosphere Paragraph Draft

Paragraph checklist:

- ❑ Write a topic sentence
- ❑ Add lots of details
- ❑ Include expert quotes
- ❑ Write a concluding sentence

Write on the back of this page if you need more space.

Mystery
Informative | Asteroids

DocSet ID: 26676

Atmosphere Draft

Name: _____

Date: _____

V.I.P.

How to Include a Quote

Introduce an expert:
According to _____
In the words of _____

“Expert quote”

Explain a quote:
This is important because _____
This shows _____
This highlights _____

Atmosphere Paragraph Draft

Paragraph checklist:

- ❑ Write a topic sentence
- ❑ Add lots of details
- ❑ Include expert quotes
- ❑ Write a concluding sentence

Write on the back of this page if you need more space.

DocSet ID: 26680

Start + Finish

Name: _____

Date: _____

V.I.P.

Introduction

Hook	Background information	Thesis
Ask a question Surprising Fact Use humor		The Earth is protected from asteroids.

Conclusion

Name: _____

Thesis	Summary	Do Something
The Earth is protected from asteroids.		

Continue on a piece of lined paper if you need more space.

Mystery

Informative | Asteroids

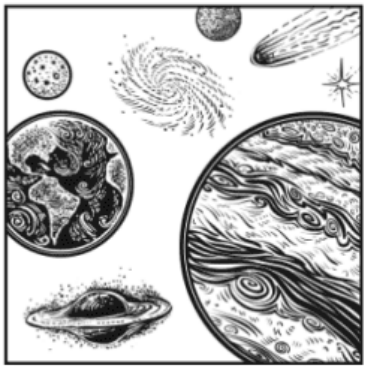
DocSet ID: 26689

Final Draft

Name: _____

Date: _____

FEATURE ARTICLE



Title: _____

Author: _____ Date: _____

Mystery

Informative | Asteroids

DocSet ID: 26703

Final Draft

Name: _____

Date: _____

Continue on a piece of lined paper if you need more space.

Mystery

Informative | Asteroids

DocSet ID: 26703

Final Draft

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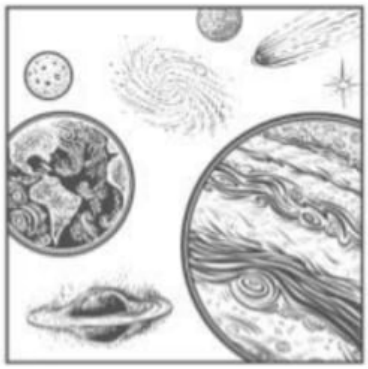
Date: Type Here…

FEATURE ARTICLE



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Author: Type Here…

Date: Type Here…

Type Here…

Mystery

Informative | Asteroids

DocSet ID: 26780

Final Draft

Name: _____

Date: _____

Type Here…

Mystery

Informative | Asteroids

DocSet ID: 26780

My Informative Writing Checklist

Investigating Asteroids

Name: _____

Date: _____

Writing Process	Learning Goals	Not yet 	Starting to... 	Yes! 
Find information	I can use two sources of information and take notes in my own words.			
Sort	I can sort my notes into subtopics.			
Use quotations	I can support my topic by including quotes from experts in my writing.			
Write a beginning	I can write a beginning that includes a hook, background information, and my main topic (thesis).			
Write an ending	I can write an ending that includes a thesis, a summary, and what I want my reader to do after reading.			
Cite sources	I can provide sources for my research by creating a bibliography.			
Read and check again	I can re-read my writing and fix any confusing parts.			
Fix capitals, spelling, and end marks	I can edit my writing by checking for errors in capitalization, spelling, and punctuation (end marks).			

DocSet ID: 26658

5th Grade Informative Writing Rubric

Investigating Asteroids

Name: _____

Date: _____

Standard	1	2	3	4	Feedback
W.5.7, W.5.8 Take notes from two sources (text and video) to determine key ideas. Paraphrase in notes.					
W.5.2.a Write an introduction in 3 parts: hook, background information, and thesis.					
W.5.2.b, W.5.8 Sort notes into subtopics, organize the information, and draft two paragraphs.					
W.5.2.b Use direct quotes to support the subtopics.					
W.5.2.e Write a conclusion that includes restatement of the thesis.					
W.5.8 Provide a list of sources by creating a bibliography.					
W.5.4, W.5.5 Review work to edit and focus on fixing punctuation, capitalization, and spelling.					

1 = standard not met; **2** = standard partially met; **3** = standard met; **4** = exceeds expectations

DocSet ID: 26657

Dolphins: Source 1

Name: _____

Date: _____

Are dolphins really one of the smartest animals in the world?

Danni Washington - Marine Biologist

Published by Mystery Science - September 2023

Video Transcript:

It takes a special kind of thinking to solve a problem with a tool like that. A kind of thinking that only a few animals have. Like this dolphin. See that thing on its beak? That's a sea sponge. The Dolphins in Shark Bay Australia were getting cut by sharp rocks at the bottom of the ocean. That's a problem. So some of them started wearing sea sponges on their beaks like helmets so they wouldn't get hurt while hunting for food. Problem-solving like that takes more thinking than just finding a bowl of food.

And it's not just the dolphins in Australia that can problem solve. Dolphins all over the world are pretty incredible at thinking like that. For example, these dolphins thought up a great way to trap fish. See how that dolphin is making a wall of mud? The other members of its pod chased the fish into the wall of mud and the fish are getting trapped like in a big net. What a great idea. Working as a team to hunt and trapping fish like that definitely takes a special kind of thinking. But that's not all these dolphins are doing.

They're communicating while they're looking for food and that takes thinking to a whole new level. Hear those whistles? Those whistles aren't just random sounds. They mean something. See, dolphins use different whistles and chirps to communicate where they are when they're hunting. Some types of whistles mean they're happy, some mean they're scared, and some types mean they've found a large school of fish to eat and need help rounding them all up.

Get this: dolphins are such good communicators that they even have a special whistle to identify themselves. It's like their name. They use this special name whistle to tell their pods where they are so they don't get lost. Kind of like saying, "Hey Mom, I'm over here." Pretty cool. Dolphins have to think in a special way to communicate like that which makes animal experts believe they're some of the best thinkers in the animal world. Communicating takes thinking, so observing how animals like dolphins communicate is a good way to tell how smart they are.

DocSet ID: 26659

Dolphins: Source 2

Name: _____

Date: _____

Amazing Dolphins

Emily Simon - Published by Discovery Education - January 2024

Dolphins are mammals that live in water but breathe air. They are most commonly found in the ocean, although some types of dolphins live in rivers. Dolphins are predators, and mostly eat seafood like fish, squid, and jellyfish. They are known to be friendly to humans, and also well known for their incredible intelligence.

Dolphin Pods

Dolphins live in pods, which can be groups of 2-30 dolphins depending on the species. Within the pods, dolphins communicate with each other and create friends and enemies. They use sounds like clicks and whistles to communicate information and feelings. Dolphins even use names when addressing each other. This helps them stick together and not get lost. It also helps them when they join temporarily with other pods. Then they know who is who when they break apart into smaller pods again.

Sticking together in the pod helps keep dolphins safe from predators because they can alert each other to a nearby threat. Then they can plan for how they will run or fight the predator. Similarly, dolphins can alert each other when they sense that there are fish nearby that they want to eat. They can then plan to work together so that everybody gets fed.

Working Together

In the wild, dolphins have to solve all kinds of problems. One of their foods, lantern fish, tend to swim very deep in the ocean. Dolphins figured out that by swimming below them, they can get the lantern fish to come up to the surface for an easier snack. Other dolphins trap food by working together in groups to surround their food by swimming around it in a circle.

Dolphins have another problem in the wild: predators. Sharks are a big problem, and dolphins have to work together to stay safe. The main way they stay safe is by traveling in pods. It's less likely that a shark will want to come after a big group of dolphins. If they do, the dolphins will protect each other by putting weaker dolphins in the middle of the group and the stronger dolphins on the outside. The stronger dolphins can fight back against sharks by hitting them with their beaks. By working together, they can even fight off great white sharks.

DocSet ID: 26659

Dolphins: Notes

Name: _____

Date: _____

Dolphins are super smart animals. They can solve problems and even talk to each other! All this brain power can really help in tricky ocean situations.

Directions:

- Watch the video to hear from Danni Washington, a marine biologist.
- Read the source #2 text.
- Use the video transcript and the source #2 text to take notes on two ways dolphins use their intelligence to survive in the wild.

Dolphins communicate	Dolphins solve problems

DocSet ID: 26659

Dolphins: Draft

Name: _____

Date: _____

Directions: Write an informative text about two ways that dolphins use their intelligence to survive in the wild.

In your writing remember to:

- ❑ Write an introduction
- ❑ Organize your writing into paragraphs
- ❑ Add details and expert quotes
- ❑ Write a conclusion
- ❑ Edit your writing
- ❑ Cite your sources in the bibliography

DocSet ID: 26659

Dolphins: Draft

Name: _____

Date: _____

If you need more space, continue on a piece of lined paper.

Bibliography

1

 Author: ( Date:)

 Title:  Publisher:

2

 ()

 

Mystery

Informative | Asteroids

DocSet ID: 26659