

Grade 8 Performance Task Overview (195 total minutes)

Title: Robot Pets

Session 1 (60 minutes):

Ultimately tasked with writing an argumentative essay on robots as pets, in this session students will read one newspaper article (539 words, 1180L) and watch two short videos, taking notes on these sources. They will then respond to three constructed response questions, one addressing reading comprehension and the other two the research skills of analyzing and evaluating information.

Session 2 (45 minutes):

Students will read a special interest magazine article (725 words, 1070L) and watch a third short video. Then working in small discussion groups, students will discuss how their opinions about the topic did or did not change as a result of the information presented in Session 2. Students will again take notes on both the resources and the views of other students.

Session 3 (90 minutes):

Finally, students will work individually to compose full-length argumentative essays on robots as pets, referring to their notes as needed. Prior to composing their full-length essays, students will be allowed access to the articles and videos they viewed on Day 1 and Day 2. Pre-writing, drafting, and revising will be involved.

Scorable Products:

Student responses to the three constructed-response questions at the end of Session 1 and the essay completed in Session 3 will be scored.

Student Directions

Your assignment:

Your school is planning a technology fair for which one category of entries is writing about technology. Write an argumentative essay to make a claim for or against robotic pets. Your essay can be read by students, teachers, and community members who attend the technology fair. Support your claim with details from what you have read, viewed, and discussed with some of you classmates.

★ Student Directions for Constructed Response Questions

- *Use the remaining time to answer the questions below. Your answers to these questions will be scored. Also, they will help you think about the sources you’ve read and viewed, which should help you write your essay. You may click on the appropriate buttons to refer back to the sources when you think it would be helpful. You may also refer to your notes.*
1. Explain what the author’s attitude is toward robot pets in the article “The Rise of the Robot Pet.” Use details from the article you read to support your answer.
 2. The author of “The Rise of the Robot Pet” uses different types of evidence to support her claim about robotic pets. Identify two different types of evidence she uses and give an example of each.
 3. What can people learn about robotic pets from the videos “Fugitsu’s cute teddy- bear robot shows what it can do” and “Pleo: Robot, pet, or both?” that they would not learn from “The Rise of the Robot Pet”? Support your answer with details from the videos and the article.

Sample Generic 2-point Use Evidence Rubric	
2	The response gives sufficient evidence of the ability to cite evidence to support opinions and ideas.
1	The response gives limited evidence of the ability to cite evidence to support opinions and ideas.
0	A response gets no credit if it provides no evidence of the ability to cite evidence to support opinions and ideas.

★ Student Directions for Small Group Discussion

Discuss as a group the following questions. You may refer to your notes. Write other people’s ideas in your notes, as well as new ideas you have during the discussion.

1. What did you think about robotic pets at the end of Session 1?
2. How are real pets better than robotic pets? How are robotic pets better than real pets?
3. What did you like about robotic pets?
4. What didn’t you like about robotic pets?
5. Did your opinion of robotic pets change after reading the article and seeing the video in Session 2? If not, why not? If so, how, and why?

The Rise of the Robot Pet

Metro Daily News June, 2011

By: Elena Soto

Nanto City, Japan, is facing a challenge that's typical of cities across the country. The city has a large (and growing) elderly population and a shortage of younger people to care for them. But Nanto City is approaching this problem in an unusual way. Over the course of 12 years, and at a cost of \$10 million, Japan's National Institute of Advanced Industrial Science and Technology has developed a robotic animal—a baby seal named Paro—to help ease the burdens of Nanto City's older residents. Some of these people not only struggle with physical illness but also with feelings of sadness, loneliness, and isolation.

By all accounts, Paro is helping. Informally, nurses report that a few elderly patients treat Paro like a family pet, covering him with blankets and trying to feed him snacks. A more formal study by Dr. Takanori Shibata, Paro's creator, discovered a 50% increase in brain activity in certain patients after spending 20 minutes with the seal.

And seals are not the only robotic animals making an impact. Senior citizens who spent time with Aibo, a robotic dog whose name means “pal” in Japanese, played with him and told him their thoughts and feelings. Some treated him much like a real, live dog. Though there have been few formal scientific studies to date, those that have been conducted point to a number of benefits of robotic pets. These include lowered stress levels and increased happiness. One study at the University of Missouri revealed that levels of cortisol, a stress hormone, fell in adults when they patted Aibo.

Other robot animals can act as guides for people with vision problems, detect fires and rescue people, and assist military troops. These are the robot “working animals.” But some robot animals exist purely for amusement. These robo-pets are, to put it simply, fun. There are baby chickens that chirp and kittens that purr. Many robo-pets behave like babies and “grow up” under the delighted eyes of their owners. Some, like Pleo, a cuddly dinosaur, learn new tricks and change their behaviors as appropriate for their “age.” As one happy customer on Amazon.com explained, “The little critter is the cutest creature I've ever seen... He's a baby dinosaur that's warm-hearted, gentle and really strikes a chord with all who meet him.”

Remarkably, these robo-pets seem to develop their own, unique personalities. Some scientists call these animals “social robots.” Their existence is possible, in part, because scientists have begun to learn more about how the human brain learns and responds, and to apply this knowledge to the rapidly changing field of robotics. Thus the robo-pets are becoming ever more realistic—and engaging. Scientists have known for years that real dogs, cats, and other pets can do a lot to improve people's lives. Now they're finding out that robotic pets can trigger the same feelings of well-being and affection that real animals can. Though robo-pets aren't cheap—it cost \$10 million to develop Paro—the many benefits they offer may soon outweigh the costs. And they never shed, or need to be cleaned up after, or demand to be taken outside for a walk!

Love in the Time of Robots

Technology Trends Quarterly Fall, 2010

By: Frank Mullin

Just as the sun will rise tomorrow morning, so too will robots rise in our society. This is not to say that robots will soon become our evil overlords, no matter what they say in the movies. Rather, robots are rising in their use and usefulness. For decades we have built our robots to perform the three Ds: things that are too dull, dirty, or dangerous for us to do. In many ways, we are now dependent on robots. But now, there is relatively new area in which robots are making advances—into our hearts.

One of the strongest bonds many people have is with their pets. Given the complexity of emotions involved in such relationships, it seems unlikely that a robotic pet could ever truly replace a biological one. But robotic pets are becoming increasingly affordable and lifelike. They can be soft and cuddly. They can respond appropriately to a loving stroke or a sharp voice command. As the technology of robotic pets improve, so too will their abilities to interact. For many people, robotic pets may seem to offer all of the pros with none of the cons of biological pets. And that may just be the problem.

Humans have long shown the ability to bestow love upon inanimate objects. Ask yourself if you have ever loved a car, or your laptop computer, or a teddy bear. Viewed in that regard, it is not difficult to imagine feeling the same love for a robotic pet. After all, a robotic cat might actually exhibit more affection than a real cat. But it is that show of affection that may be most troubling. When a nuzzle is given by an aloof biological cat, the owner may feel a rush of pride at having earned such an honor. But what of a robotic cat? Would the owner still feel pride, knowing in the back of her mind that that aloofness was coded into the cat by some computer programmer?

There are, however, some people who may not be aware of the computer programmer's hand: children. Kids love their stuffed animals, so it makes sense that they would love robotic pets even more if those pets seemed to love them back. Again, though, the trouble here lies in the simulation of love. In 2001, Sherry Turkle, a professor at the Massachusetts Institute of Technology, performed an experiment where children were observed interacting with a robot. On one occasion, the robot malfunctioned and the subject, a young girl, assumed that the robot no longer liked her. The girl became sad and withdrawn. "Can a broken robot break a child?" Turkle wrote in her book *Alone Together*. "We would not consider the ethics of having children play with a damaged copy of Microsoft Word or a torn Raggedy Ann doll. But social robots provoke enough emotion to make this ethical question feel very real." (Continued) —>

No matter how lifelike a robotic pet may seem, it is still just a technologically advanced machine. Numerous research studies have found that advanced technologies, such as mobile phones and the Internet, often lead to social isolation. It is not hard to imagine that a very lifelike robotic pet, while providing an elderly woman with comfort and companionship, might also cause that woman to isolate herself from human interaction. As one commenter noted in an online forum on robots, “In a few years we’ll never have to leave the house!”

Finally, there is the matter of responsibility. Many children get their first experience with responsibility by caring for a pet. Biological pets have real needs, the neglect of which holds very real consequences. But what does a child learn about responsibility when the only need her robotic dog has is to be recharged occasionally? What lesson is learned if, when a child gets bored with his pet, he can stuff it in the back of his closet and forget about it?

Tomorrow the sun will rise, and with it, more people will rise to greet their robotic pets. This may or may not be a bad thing. But before the robotic dog takes its place as man’s new best friend, it might be worthwhile to ask whether giving love to something that cannot love you back is truly a friendship at all.

Videos

1. *Fugitsu’s cute teddy-bear robot shows what it can do*, May 2010:
<http://www.youtube.com/watch?v=AwWen1ARy74>
This is an introduction to the Fujitsu robot teddy bear.
2. *Pleo: Robot, pet or both?* December 2007
<http://www.youtube.com/watch?v=F6LCEFr8SxQ>
The host of a technology show provides an introduction to a specific robot pet.
3. *Maya’s Human Interaction – Sensors (A Genibo-QD film)*, February 2010.
<http://www.youtube.com/watch?v=9b4jx5RzqAk>
The Genibo robot dog displays some of its capabilities.

Sample Generic 4-point Argumentative Writing Rubric (Grade 6-11)

Score	Statement of Purpose/Focus and Organization		Development: Language and Elaboration of Evidence		Conventions
	Statement of Purpose/Focus	Organization	Elaboration of Evidence	Language and Vocabulary	
4	<p>The response is fully sustained and consistently and purposefully focused:</p> <ul style="list-style-type: none"> claim is clearly stated, focused and strongly maintained alternate or opposing claims are clearly addressed* claim is introduced and communicated clearly within the context 	<p>The response has a clear and effective organizational structure creating unity and completeness:</p> <ul style="list-style-type: none"> effective, consistent use of a variety of transitional strategies logical progression of ideas from beginning to end effective introduction and conclusion for audience and purpose strong connections among ideas, with some syntactic variety 	<p>The response provides thorough and convincing support/evidence for the writer's claim that includes the effective use of sources, facts, and details. The response achieves substantial depth that is specific and relevant:</p> <ul style="list-style-type: none"> use of evidence from sources is smoothly integrated, comprehensive, relevant, and concrete effective use of a variety of elaborative techniques 	<p>The response clearly and effectively expresses ideas, using precise language:</p> <ul style="list-style-type: none"> use of academic and domain-specific vocabulary is clearly appropriate for the audience and purpose 	<p>The response demonstrates a strong command of conventions:</p> <ul style="list-style-type: none"> few, if any, errors are present in usage and sentence formation effective and consistent use of punctuation, capitalization, and spelling
3	<p>The response is adequately sustained and generally focused:</p> <ul style="list-style-type: none"> claim is clear and for the most part maintained, though some loosely related material may be present context provided for the claim is adequate 	<p>The response has an evident organizational structure and a sense of completeness, though there may be minor flaws and some ideas may be loosely connected:</p> <ul style="list-style-type: none"> adequate use of transitional strategies with some variety adequate progression of ideas from beginning to end adequate introduction and conclusion adequate, if slightly inconsistent, connection among ideas 	<p>The response provides adequate support/evidence for writer's claim that includes the use of sources, facts, and details. The response achieves some depth and specificity but is predominantly general:</p> <ul style="list-style-type: none"> some evidence from sources is integrated, though citations may be general or imprecise adequate use of some elaborative techniques 	<p>The response adequately expresses ideas, employing a mix of precise with more general language</p> <ul style="list-style-type: none"> use of domain-specific vocabulary is generally appropriate for the audience and purpose 	<p>The response demonstrates an adequate command of conventions:</p> <ul style="list-style-type: none"> some errors in usage and sentence formation may be present, but no systematic pattern of errors is displayed adequate use of punctuation, capitalization, and spelling
2	<p>The response is somewhat sustained and may have a minor drift in focus:</p> <ul style="list-style-type: none"> may be clearly focused on the claim but is insufficiently sustained claim on the issue may be somewhat unclear and unfocused 	<p>The response has an inconsistent organizational structure, and flaws are evident:</p> <ul style="list-style-type: none"> inconsistent use of basic transitional strategies with little variety uneven progression of ideas from beginning to end conclusion and introduction, if present, are weak weak connection among ideas 	<p>The response provides uneven, cursory support/evidence for the writer's claim that includes partial or uneven use of sources, facts, and details, and achieves little depth:</p> <ul style="list-style-type: none"> evidence from sources is weakly integrated, and citations, if present, are uneven weak or uneven use of elaborative techniques 	<p>The response expresses ideas unevenly, using simplistic language:</p> <ul style="list-style-type: none"> use of domain-specific vocabulary may at times be inappropriate for the audience and purpose 	<p>The response demonstrates a partial command of conventions:</p> <ul style="list-style-type: none"> frequent errors in usage may obscure meaning inconsistent use of punctuation, capitalization, and spelling
1	<p>The response may be related to the purpose but may offer little relevant detail:</p> <ul style="list-style-type: none"> may be very brief may have a major drift claim may be confusing or ambiguous 	<p>The response has little or no discernible organizational structure:</p> <ul style="list-style-type: none"> few or no transitional strategies are evident frequent extraneous ideas may intrude 	<p>The response provides minimal support/evidence for the writer's claim that includes little or no use of sources, facts, and details:</p> <ul style="list-style-type: none"> use of evidence from sources is minimal, absent, in error, or irrelevant 	<p>The response expression of ideas is vague, lacks clarity, or is confusing:</p> <ul style="list-style-type: none"> uses limited language or domain-specific vocabulary may have little sense of audience and purpose 	<p>The response demonstrates a lack of command of conventions:</p> <ul style="list-style-type: none"> errors are frequent and severe and meaning is often obscure
0	<p>A response gets no credit if it provides no evidence of the ability to (fill in with any key language from the intended target).</p>				

* Begins in 7th Grade