

**Nature Journaling as a Tool for Nature Connection in an Urban Middle School**

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### **Abstract**

In this qualitative study, nature journaling exercises will be explored with middle school students in New York City in order to determine if nature journaling within landscaped urban parks benefits mindfulness, understanding, and nature connection. The impact of nature journaling will be measured using pre and post-survey responses to the Inclusion of Nature in Self Scale (INS), student interviews, teacher observations, and student nature journal entries. Qualitative data collected in this study will be analyzed using the constant comparative method and *in vivo* coding. The INS data will be analyzed using a comparison of averages and t-tests.

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### **Results**

The results represented in this study were collected over a four week period with a class of 7th graders. In total sixteen 7th graders are represented within the data, nine boys and eight girls. The data presented in this study was collected through the Inclusion of Nature in Self Scale (INS), student interviews, teacher observations, and student work samples. Data was collected before, during, and after two visits to Hudson River Park in New York City in the month of March 2022.

### **INS**

Students completed the Inclusion of Nature in Self Scale (INS) before the nature journaling experience and after the nature journaling experience. Students identified their own connectedness to nature on a Likert-type scale of 1-7 as represented by overlapping circles. Prior to the nature journal experience the average pretest score was 3.875 and the average post test score was 4.19 as described in figure 1. The t-test revealed that these results are not statistically significant as the calculated  $p$ -value was 0.57 whereas a statistically significant  $p$ -value would need to be  $p \leq 0.05$ . When comparing male and female pre and post test scores male nature connectedness scores on average increased by 0.779 and female nature connectedness scores on average decreased by 0.286 as pictured in figure 2. A  $t$ -test was conducted on the male and female pre and post scores, neither group's results were statistically significant as shown in figure 3, the male pre and post t-test resulted in a  $p$ -value of 0.318 and the female pre and post t-test resulted in a  $p$ -value of 0.718.

## Student Interviews

Student interviews were analyzed using *in vivo* coding. After the first nature journaling trip to the park most students who felt connected to nature expressed that focusing on their observations and noticings made them feel more connected to nature. In total, thirteen students identified a positive connection to nature in their interviews after their first field trip. One student said, “I felt connected to nature because I had to pay attention to the details of the tree and I had to notice every little detail.” Three students lacked a feeling of connection to nature after the trip, two students believed that the “dead plants and trees” caused them to feel not connected to nature while another felt their lack of drawing skills made it harder for them to connect with nature through nature journaling. In addition, one of the students who felt inhibited establishing a nature connection amongst “dead plants” also felt that they needed more time in nature to establish a connection. After the second trip, the themes of awareness, focus, and observations rang through thirteen interviews. One student expressed that their second trip was inspiring in part because of the daffodils blooming. Again, the same three students expressed a lack of connection because they felt like they needed more time in nature, dead plants interfered with their feeling of nature connection, and for the third student the experience felt too commonplace to feel connected. When asked about how it feels to sit in nature and journal all sixteen students expressed positive feelings towards the experience after both trips. The most common feelings were nice, good, and relaxing. Two students noted that they felt zoned out while working in their journals outside.

Students were also asked to share what they learned from their experience after each nature journal trip. While two students overall felt they had learned to be better at drawing, the other fourteen students felt more confident in identifying plants and animals around them. Five students explicitly expressed new insights around mindfulness including, “being in nature is

relaxing,” “it felt relaxing and was stress relieving to draw and journal. I could forget about what was going on in my life and really enjoy what I was doing. I noticed a lot of my classmates were enjoying their time and drawing ” and “it doesn’t matter if you can’t draw, you still get to adjust your mindset and relax/focus.”

### **Teacher Observations**

While out in the park I observed students engaging in their nature journal practice. Many of the themes uncovered in the student interviews were observed by me as well. During the first nature journaling experience trip I observed three focus students. Each student demonstrated being present by spending time observing, noticing their surroundings, and at times even speaking about their observations. There was an element of stewardship in my three focus students, being careful not to step on plants and collecting lost colored pencils from classmates. There was noticeable excitement and openness within the students, two of the three focus students exhibited concentration while one student was noticeably distracted and attempting to engage in a game of tag. Upon the second visit to the park I observed four students. All four students exhibited being present and open to the experience. However, only two of the four engaged actively in stewardship by removing trash from the area and three of the four were highly focused and not distracted while practicing their nature journaling.

### **Student Work Samples**

Upon each trip to the park students were presented with a variety of nature journaling exercises to engage in. Student work samples 10 and 15 include images that represent the students themselves in nature. In student work sample 10 the student included their classmates in their nature journal page. In student work sample 15 the student included her own backpack in the image. Several students took time to zoom in on particular elements within their nature

journal pages like the feet of a goose in student work sample 3 or the petals of a flower in student work sample 13. On the second nature journal trip students were encouraged to pick a plant or animal to count and keep track of, focusing on collecting data led to many students creating more detailed pages such as in student sample 1 who counted squirrels, student work sample 2 who counted blue flowers, student work samples 8 and 14 counting woodpeckers and robins, and student work sample 11 counting daffodils and dogs. Student work samples 4, 6, and 16 demonstrate students engaging in the finer details of the landscape of the park by paying close attention to specific features and variety within plants and landscapes. Similarly student samples 5 and 7 depict students using labels to further explore and explain the components of plants and animals. Student work samples 9, 12 and 17 all include elements of the city like roads, tall buildings, or other city features in addition to more basic nature features like trees and water.

### **Discussion**

Data from the INS, student interviews, and nature journal pages were compared in order to address the first research question, how does nature journaling affect urban middle schoolers' nature connection. When looking at the INS data, the average pretest score was a 3.875 whereas the average post-test score was a 4.19. The average post test score landing in the middle range of the INS scale aligns similarly with the results of Kossack & Bogner (2012) who also found most post test scores to land in the middle 3-5 range. Although the data collected was not statistically significant it does indicate that there was a slight increase in nature connection amongst the class. As previously noted, when separating students by sex the males nature connection increased by 0.779 points and the females nature connection decreased by 0.286. It is unclear what caused the female students to feel less connected to nature. This result is the opposite of the results shared in Musitu-Ferrer et al. (2019) where females scored higher in nature connectedness than males. One

possibility might be that as students deepened their knowledge about the plants and animals in the surrounding areas the more they realized they did not know which could have left students feeling less connected to nature.

Students were asked to bring two nature journal pages to their interviews similar to the Deaver and McAuliffe (2009) interview procedure. When discussing with students there was a common theme of feeling more connected to nature through nature journaling because the exercise of journaling required them to focus and hone in on the small details. Despite the INS data that shows a decrease in females connection to nature, interviews with both male and female students tended to express more connection to nature. When interviewing a student about her drawing of blue and purple flowers at the foot of a tree, student sample 15, it became clear that she felt deeply connected to nature within the park as she explained that she included her own backpack within the drawing and began to refer to the tree as hers. There's a similar pattern in student sample 10 depicting the apple garden where he has included images of classmates as well as trees, grass, and bushes. The three students who felt less connected to nature explained this lack of connection from plants and trees that they interpreted to be dead or from a lack of confidence in their ability to draw. Interestingly all three students who did not feel connected to nature were males even though every male on the INS data increased in their nature connection from the pre and post INS. Overall the class had an increased connection to nature, the male students made greater gains over the females in the INS data and the females made greater gains in nature connection over the males in their interviews.

The second research question, how does engaging in nature journaling in an urban landscaped environment provide opportunities for mindfulness, was explored in both the teacher observations and student interviews. While observing students in the field there was a noticeable

lightness about my middle schoolers as they roamed the park. Smiles, giggles, a sense of wonder, and a general openness to spending a few class periods outdoors were shared by all. As I focused on a few students each time we went into the park, every student I observed exhibited moments of mindfulness. Some students became quiet and focused on their journal pages while others picked up trash in pairs showing signs of stewardship. When interviewing students about their feelings on nature journaling, my observations were confirmed. Every student expressed positive feelings about sitting in nature. There was an overwhelming number of students who felt calmed by nature, they described sitting in nature as serene, relaxing, and refreshing. One student explained, “I felt concentrated and focused on drawing, I barely noticed what was happening next to me.” While another student expressed that, “it felt good to take a break from being inside all the time. It was nice to incorporate hands-on nature in my studies for once. I felt calm and noticed all of the life that was all around.” The feelings of mindfulness including stewardship for the park and the openness to finding new experiences and elements within the park are in alignment with the feelings of Warkentin’s (2011) students who nature journaled in Central Park for a semester.

The final research question, what new insights might students gain through a nature journal practice, was explored through student interviews. One of the most prominent themes across the interviews was that students felt like they learned the most about identifying the plants and animals around them. This noticing is similar to what Payne and Wattchow (2008) discuss in their article focusing on slow and place pedagogy. Payne and Wattchow’s students through slow and placed pedagogy were able to better understand the world around them through lived experiences in a deeper and more meaningful way. Students in my class felt like they were able to name more plants and animals in the park than they were able to previously. One student said,

“I learned that there is a lot of aspects of nature that you wouldn’t notice unless you took a closer look.” Another student said, “I learned more about different species of plants and animals like blue jays and sparrows and I got more practice drawing.” The second most common theme expressed was a desire to spend more time in nature for relaxation and enjoyment. For example a student expressed, “I learned that being connected to nature makes your life more thoughtful.” Another student mentioned, “I should go outside more.” Another student said, “it is cool to see nature in a city and it is very nice and relaxing.” From the student interviews it appears that students are more connected to the nature around them since learning to identify plants and animals and that students are finding mindfulness as a product of nature journaling. The appreciation for the mindfulness enhancing elements of nature journaling is once again in alignment with Warkentin’s (2011) findings.

### **Conclusion**

While it is clear that more data must be collected in order to best answer the research questions presented in this paper, we do have some glimpses of answers through the data. Overall, nature journaling had a positive impact on fostering a nature connection amongst urban middle schoolers even within a manicured park setting which aligns with Warkentin’s (2011) findings. Boys showed an increase in nature connection and girls showed a decrease in nature connection through the INS scale whereas girls showed an increase in nature connection and boys showed a decrease in nature connection through their interviews. Considering the cross comparison of student interviews to teacher observations, nature journaling provided multiple opportunities for student mindfulness. Students presented focus and a sense of ease while out in the park. Upon reflection in their interviews students acknowledged that they felt relaxed and calm while observing the plants and animals around them at the park. Nature interpreters who

also engaged in mindfulness exercises outdoors found that they were more intune with their natural surroundings as well in Dussler & Deringer (2020). As Grimwood (2017) reported in his study, the children in the program appeared to become more connected to nature by learning in nature. While most students walked away from their nature journaling experience with new insights and understandings about the local flora and fauna of Hudson River Park, another large portion of students learned that nature and being connected to nature can provide a needed escape from city life and provide opportunities for connecting with nature and engaging in mindfulness.

Looking to the future, there are several ways in which I would like to expand upon this study. The boys demonstrating an increase in nature connection through the INS results and the girls gaining more nature connection through interviews leads me to believe there is more to uncover here. I would like to continue researching the impact of nature journaling on boys and girls and continue to use these same methods in order to better understand what is happening. It might also be helpful to have students explain why they chose a particular level on the INS scale for more context. I am curious to repeat this study over a longer period of time to see how watching seasons change over the year affects nature connection. Seeing as some students noted that trees and plants that appeared dead made them feel less connected to nature, I am curious if the number of students feeling this way would increase in the winter time. Additionally, many of the activities the students completed in their nature journal were very structured. I would be interested in further researching the effects of structured versus unstructured nature journaling on middle school students' connection to nature. One final avenue I'd like to further explore are the impacts of a nature experience on student mindset and behavior for the rest of the day. Since Bakir-Demir et al. (2019) noted that higher levels of nature connection lead to better cognitive

regulation it would be interesting to see if the mindfulness benefits from a nature journal trip continued to pay off after the outdoor experience.

Although this study involved a small number of students in New York City over a short period of time, this study is important in making a claim for more outdoor educational experiences within the traditional school day. Warkentin (2011) explains that her nature journaling semester was for many of her college aged students, their first experience with experiential learning. Experiences like this need to become more abundant in K-12 education in order to expand opportunities for all students in city and rural settings to get outside. While some may argue that time outside of the school building takes away from student learning, if anything this study has demonstrated to me that spending time outdoors has further expanded my students' understanding of the life around them and struck a curiosity to learn more.

**Figures**

Figure 1 - Average Pre and Post Inclusion of Nature in Self Scores

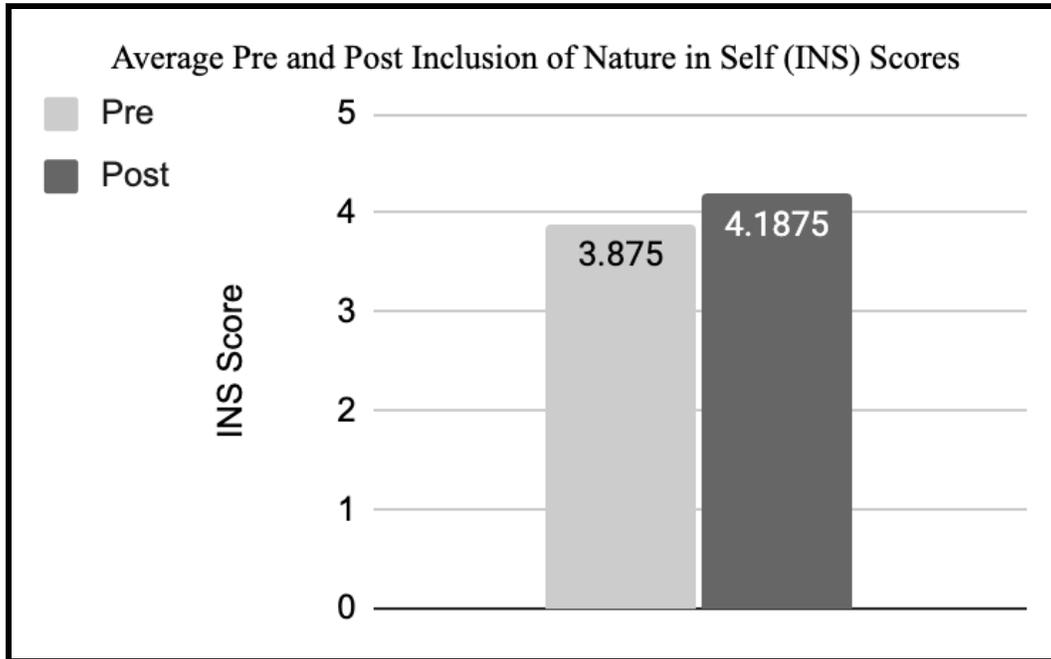


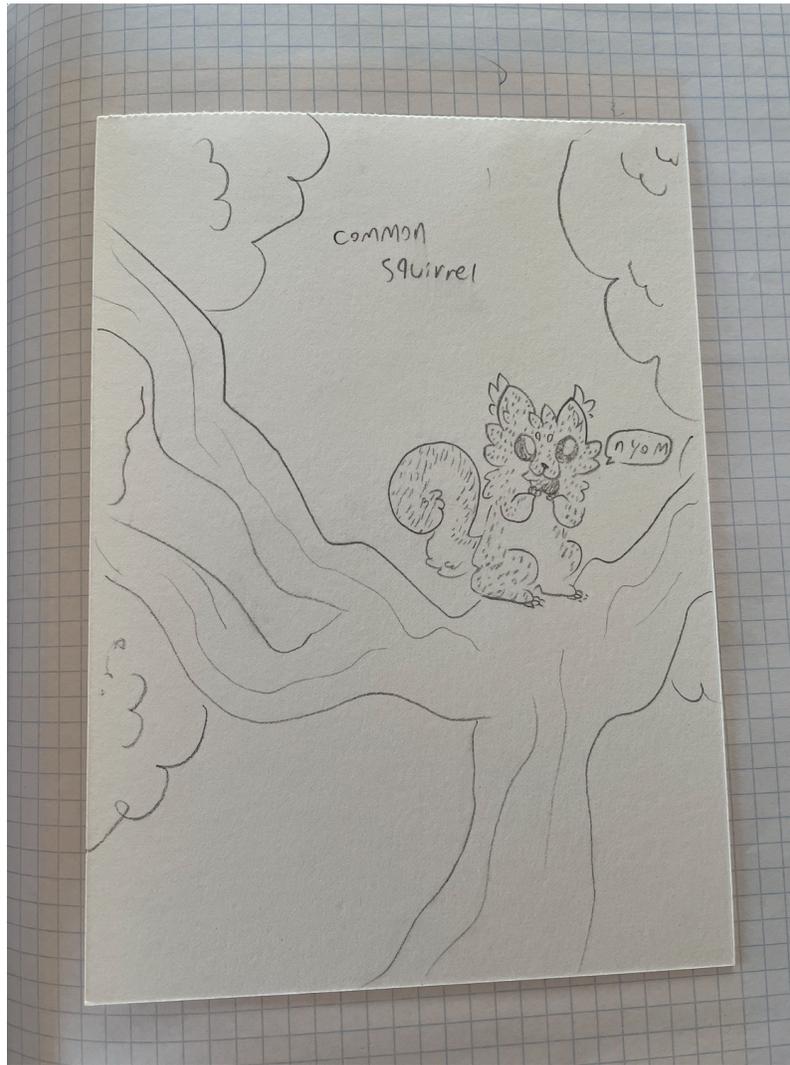
Figure 2 - Male vs. Female INS Scores and Averages

	PRE SCORE MALE	POST SCORE MALE	PRE SCORE FEMALE	POST SCORE FEMALE
	4	4	3	4
	6	7	3	3
	2	3	3	3
	3	3	7	4
	2	4	6	5
	4	5	2	3
	3	5	3	3
	4	4		
	7	7		
Average	3.889	4.667	3.857	3.571
AVG. Difference	Male Difference	+0.779	Female Difference	-0.286

Figure 3 - Male vs. Female INS Scores *t*-Test Results

	Males	Females	Whole Class
<i>p</i> -value	0.318	0.718	0.568

Student Work 1



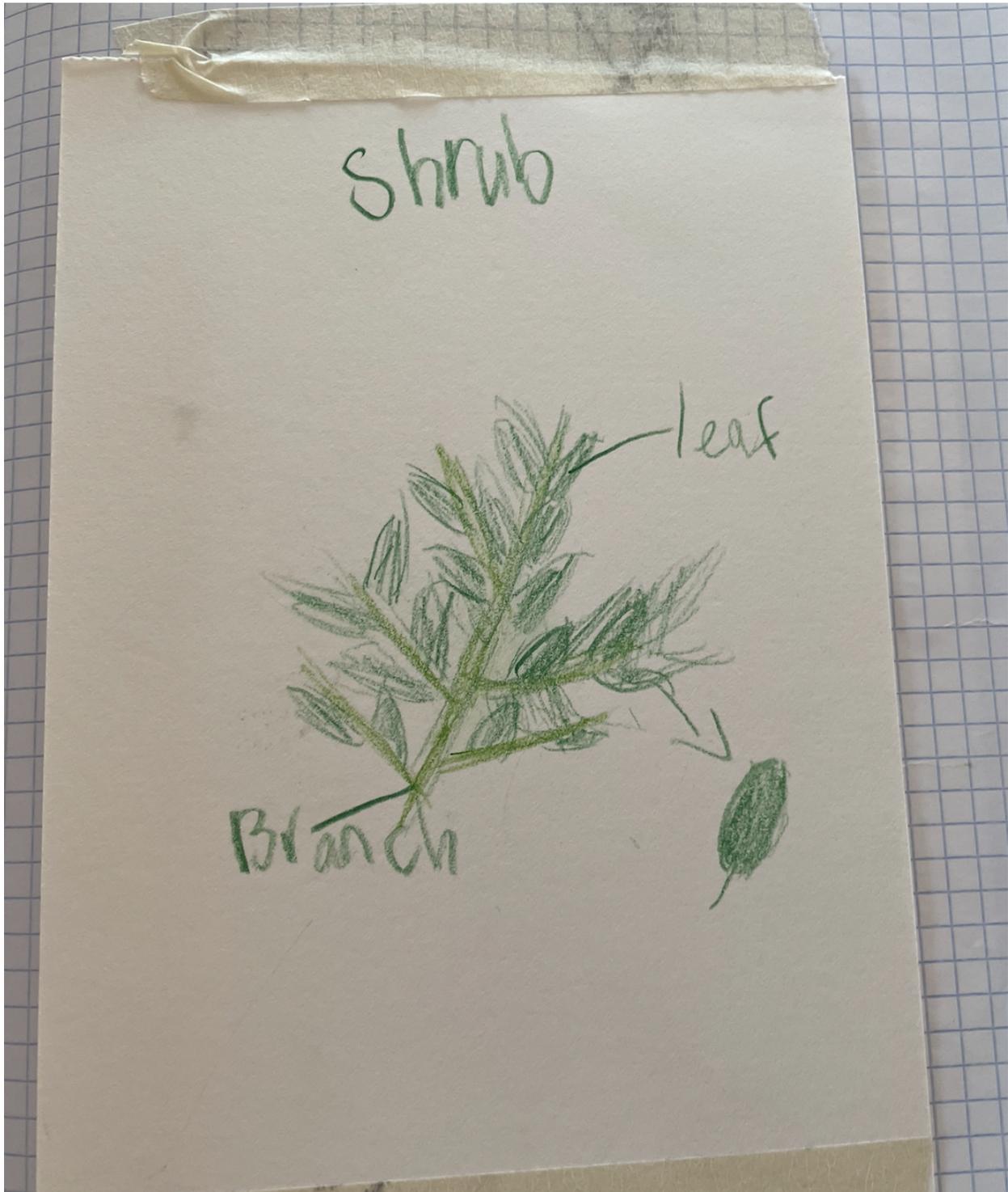
Student Work 2



Student Work 3



Student Work 4



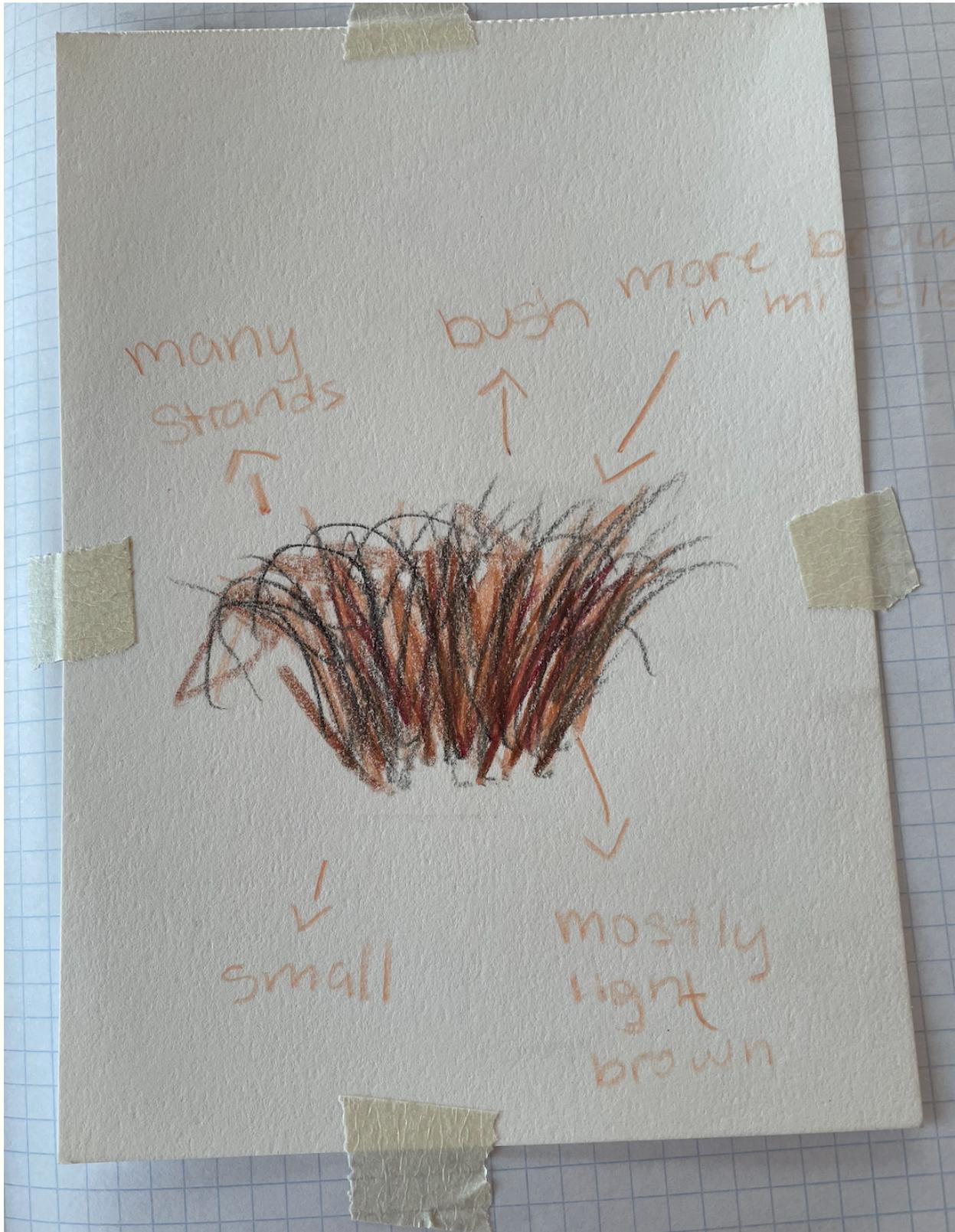
Student Work 5



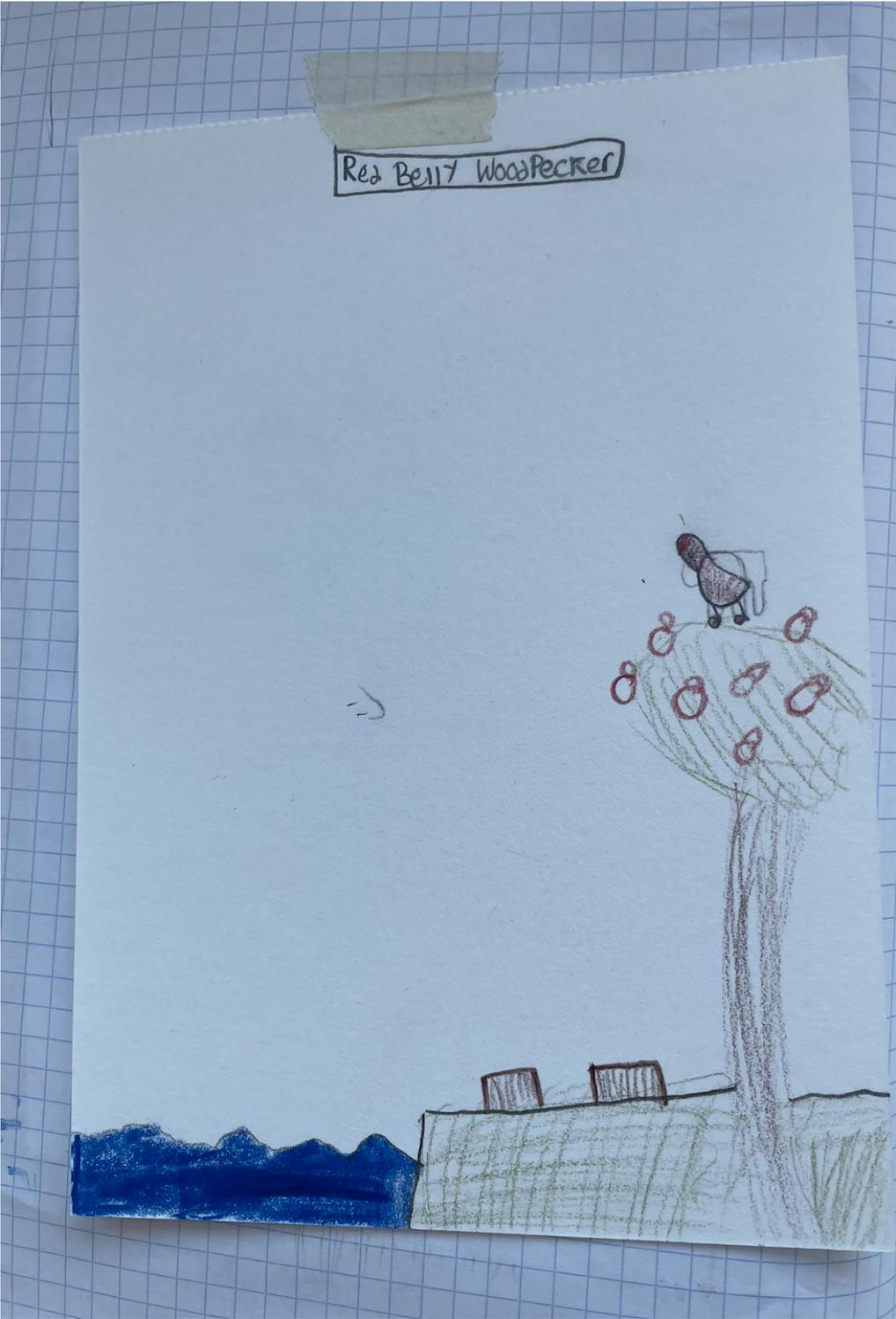
Student Work 6



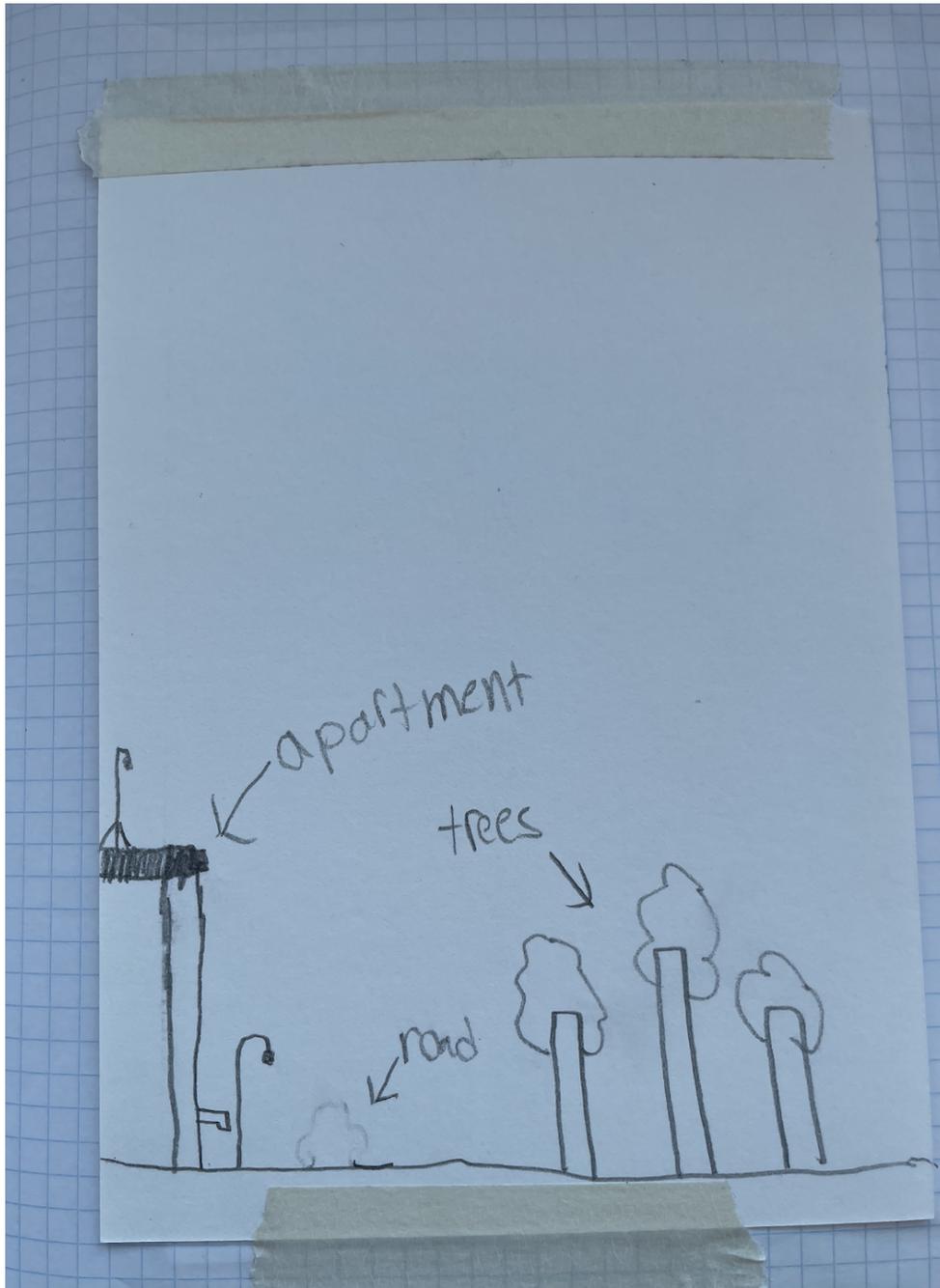
Student Work 7



Student Work 8



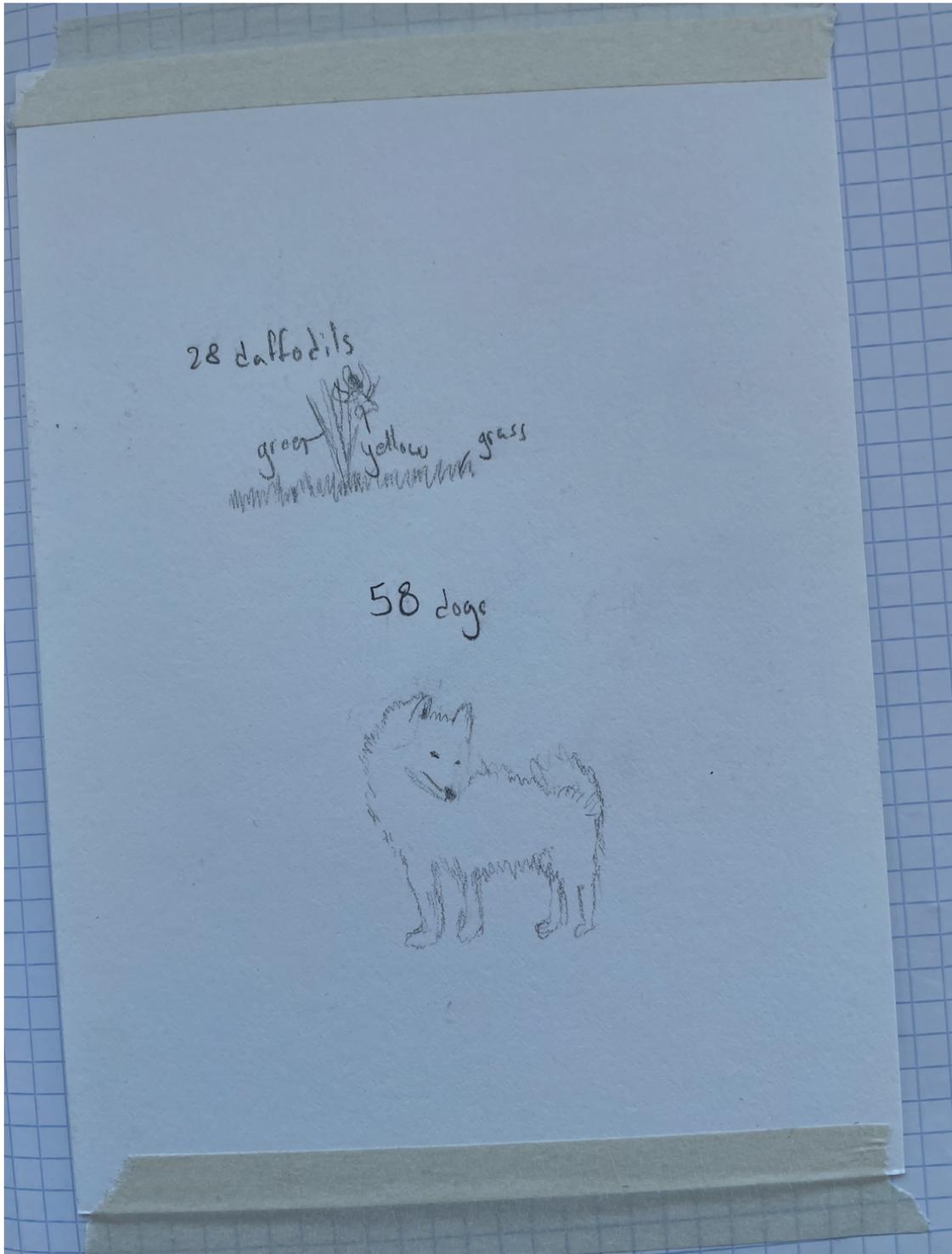
Student Work 9



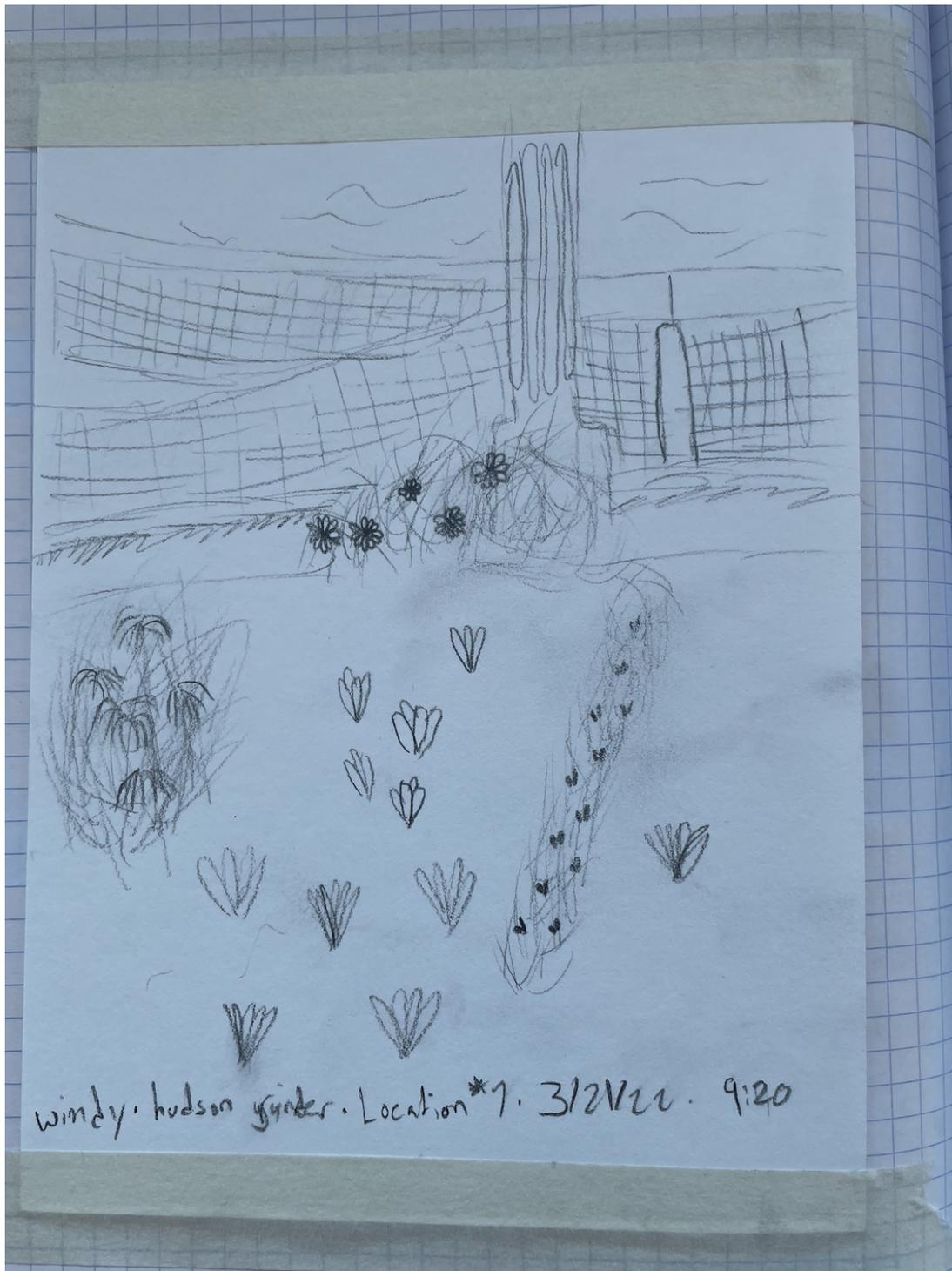
Student Work 10



Student Work 11



Student Work 12



Student Work 13



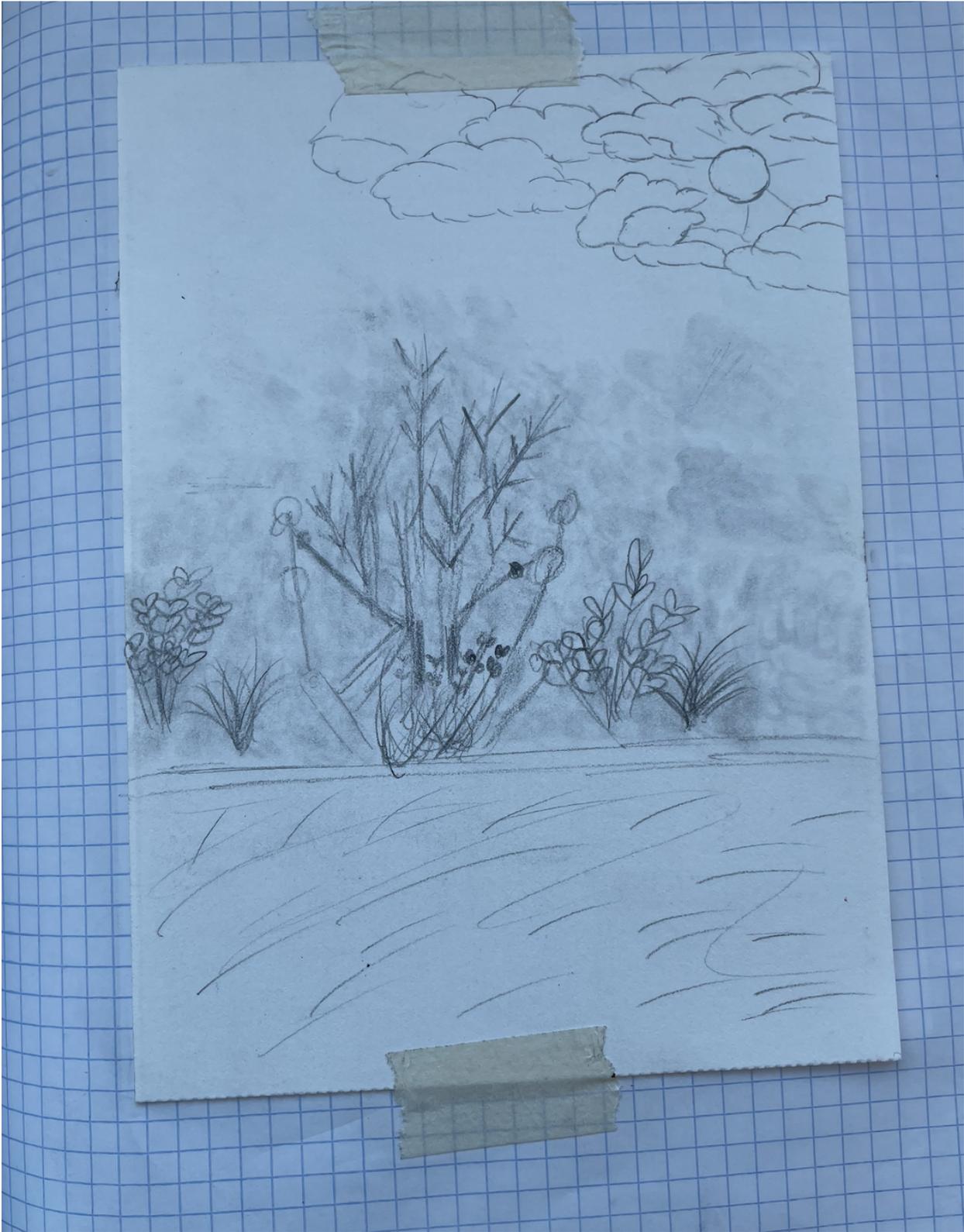
Student Work 14



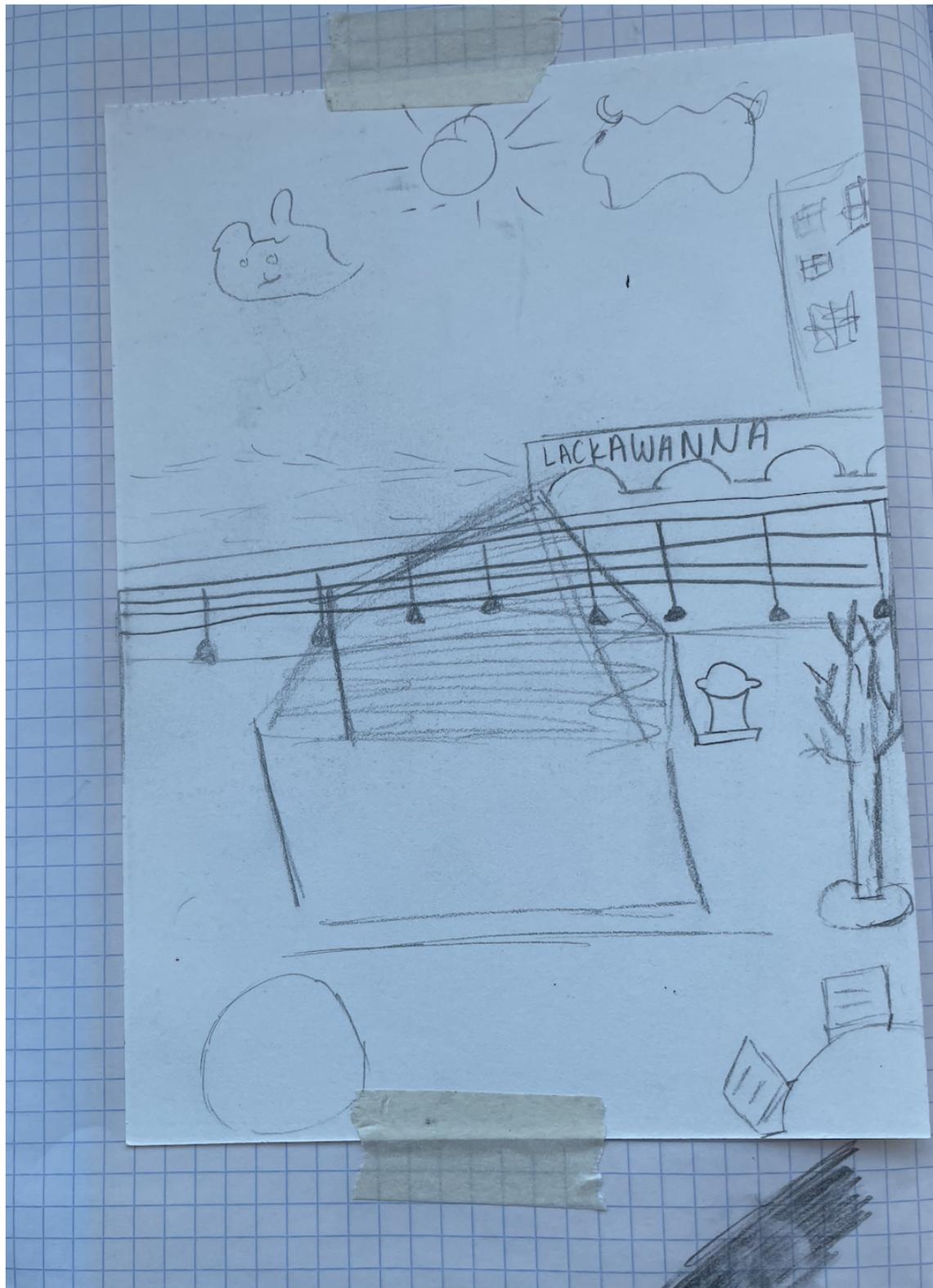
Student Work 15



Student Work 16



Student Work 17



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