Serendipity, Issue #1
Numbers in Nature

Art-Georgia O'Keefe
Art Element:Perspective
Looking at flowers from a close perspective:

Exercise 1: Take a fieldtrip to a grocery store or go to a nursery and look at flowers by holding them right up to your nose. What do you notice? What do you wonder? Write these thoughts down and have your child draw something they find interesting in the nursery in a nature journal. You can pick up a Composition Book in the Annex to use as a journal. Take your time and look at as many flowers as interest lasts.

Introduce Georgia O'Keefe, an artist from past times. Don't worry so much about her biography except that she lived a while ago and she is an American painter. Complete the Observation Exercise with *one* of the paintings below. Talk about what they notice in these paintings compared with the real flowers they saw at the nursery. Continue to look at a different flower painting by Georgia O'Keefe each week. Spend time each day "reading" the painting. What do you notice? What do you wonder? Guide your child into looking for small details each time. Write these thoughts down so you can revisit them.

Jimson Weed, 1936 by Georgia O'Keeffe

Georgia O'Keeffe.net
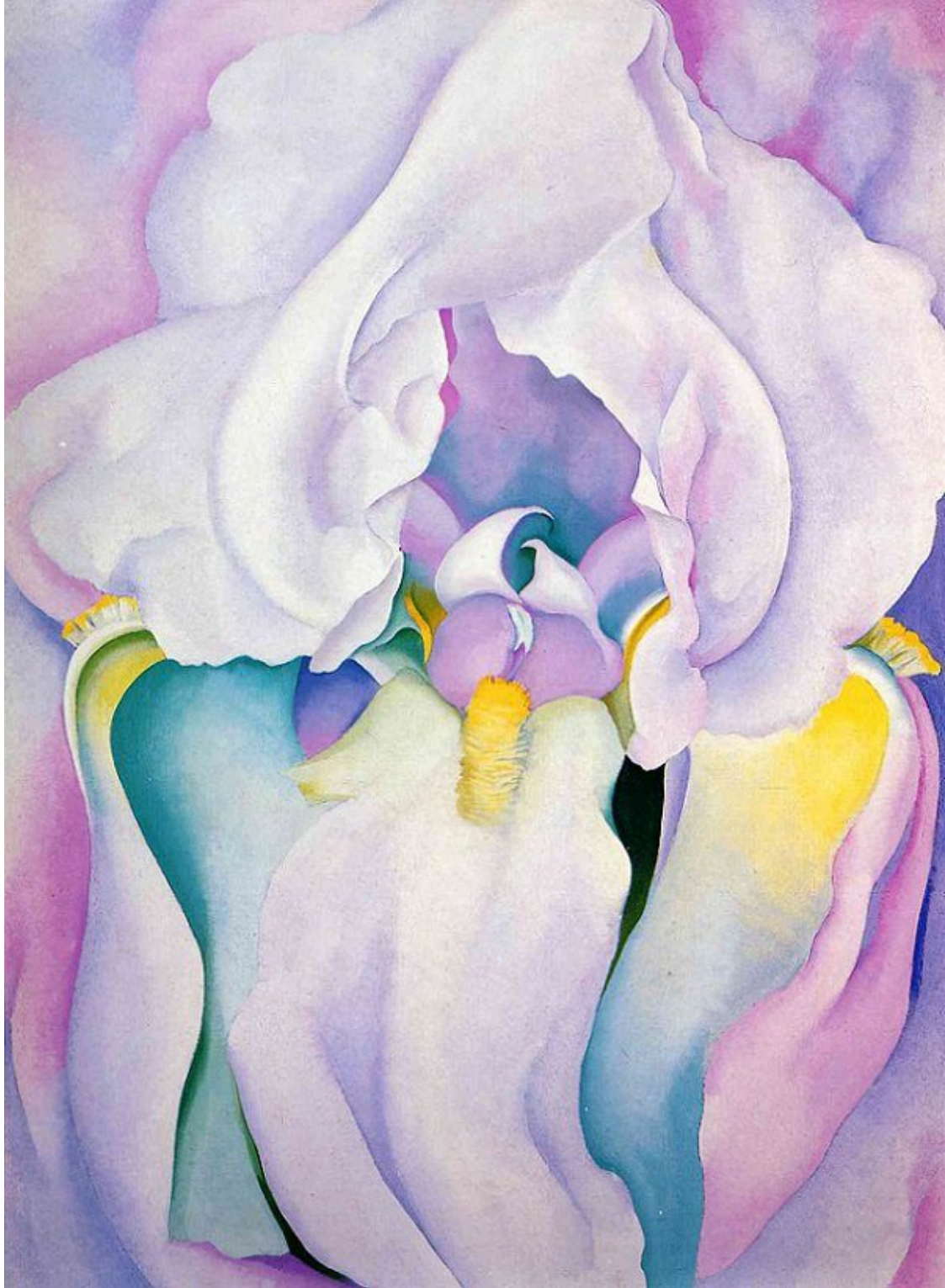
Light Iris, 1924 by Georgia O'Keeffe

Georgia O'Keeffe.net

Red Canna, 1924 by Georgia O'Keeffe

Georgia O'Keeffe.net

Exercise 2: Revisit your noticings and wonderings.
Nature Design
Find some flowers, petals and leaves, you can pull apart. First, Draw or tape down and label these parts in your journal. Next, experiment creating designs that are different than a flower shape using more petals and leaves you have found. You can lay these designs out on the dirt or on a paper. Do this several times until your child has a design s/he really likes. If you do this over several days you will want to use fresh flowers each time you work. After finding a design that is pleasing to your child, take out a sheet of contact paper for your child to build their design on. Place another sheet of contact paper over the top of the design leaving a small overlap at the top. This overlap can be used to stick the creation on the window.

Exercise 3: **Math/Science- Fibonacci Numbers in Nature- Counting**
Credited website: University of Georgia, jwilson.coe.uga.edu/emat6680/fib_nature.htm

"The Fibonacci numbers are Nature's numbering system. They appear everywhere in Nature, from the leaf arrangement in plants, to the pattern of the florets of a flower, the bracts of a pinecone, or the scales of a pineapple. The Fibonacci numbers are therefore applicable to the growth of every living thing, including a single cell, a grain of wheat, a hive of bees, and even all of mankind. It is the specific patterning we see in nature." Take a close look at a pinecone, a pineapple, and the center of a sunflower. Can you see the double set of spirals? These spirals are created using the Fibonacci sequence. How this is actually done is not really a Kindergarten concept so don't worry about teaching it. The idea that special numbers appear everywhere in nature is cool!
FYI only: The first two numbers in the Fibonacci sequence are either 1 and 1, or 0 and 1. The next number would be the sum of the previous two. For example 1, (1+1=)2, (2+1=)3, (3+2=)5, etc. Use unifix cubes to demonstrate the sequence up to 13. Seeing the Fibonacci sequence is miraculous to children.

Fibonacci sequence:
1,1,2,3,5,8,13, 21, 34, 55, 89, 144,...

Can you find these Fibonacci Petals? It will probably require another trip to the nursery!

3 petals	lily, iris
5 petals	buttercup, wild rose, larkspur, columbine
8 petals	delphiniums, poppies
13 petals	ragwort, corn marigold, cineraria
21 petals	aster, black-eyed susan, chicory
34 petals	plantain, pyrethrum

This is great practice counting accurately with one-to-one correspondence!

Math Challenge:
Can you color a picture using the Fibonacci sequence up to 13? Decide the setting of your picture, say a yard scene. Draw one single object representing the first one in the sequence and another single object representing the second one in the sequence. For example draw one tree with one apple. Next draw two of something else (maybe two birds), then 3 different things in your picture (3 cats for example), etc. up to 13. For another example, draw one tree trunk, and one squirrel. Then draw two clouds, three birds, 5 cats, 8 people, and 13 flowers. Have fun! Again, this is great practice with one-to-one correspondence and counting to 13. And this will take some time to complete so you may want to space out the drawings over a week's time!