

COMPOST BINGO

All About Composting

Hailey Campbell, Intern, UT/TSU Extension

Lori Duncan, Assistant Professor, Department of Biosystems Engineering & Soil Science

Andrea Ludwig, Associate Professor, Department of Biosystems Engineering & Soil Science

Lynne Middleton, State 4-H Curriculum Specialist, 4-H and Youth Development



Compost BINGO

All About Composting

Skill Level

Beginner (4th/5th)

Learner Outcomes

The learner will be able to demonstrate their understanding of the following:

- What is compost?
- How to start a compost bin
- What items can be composted?
- Understand how compost can aid in mitigating erosion

Educational Standard(s) Supported

4.ESS.1

Success Indicator

Students will be able to accurately explain composting, along with the different items that can and cannot be composted.

Tags

4-H Science
Garden
Compost

Time Needed

30-40 minutes

Materials List

Student Worksheet
Compost BINGO Boards
BINGO pieces (cut out)

Author(s)

Hailey Campbell, Intern, UT/TSU Extension
Lori Duncan, Assistant Professor, Biosystems Engineering & Soil Science
Andrea Ludwig, Associate Professor, Biosystems Engineering & Soil Science
Lynne Middleton, State 4-H Curriculum Specialist, 4-H and Youth Development

Introduction to Content

Organic waste, like table scraps and banana peel, is a global issue with most of the food waste occurring in our own homes. Taking this organic matter out of the traditional landfill and composting it at home allows for a more circular system minimizing waste.

Composting is the process of recycling organic materials into a nutrient-rich soil amendment that can be reapplied to gardens and flower beds. In this lesson, students learn different aspects involved: what composting is, what items can be composted, and how to compost at home on both a large and small scale.

Terms and Concepts

Composting- the act of taking items like food scraps, lawn clippings, cardboard, or other organic materials that would otherwise go to the landfill and upcycling into nutrients to improve soil health.

Erosion- the process of natural forces, like wind or water, wearing away the earth.

Biodegradable- an object that can be broken down by decomposers or bacteria.

Upcycling- taking items that aren't being used and creating it into something with better quality and usefulness.

Introduction to Methodology

In this activity, students will learn about composting. They will further their understanding by playing Composting BINGO, where all the items on the activity sheet can be composted.



Setting the Stage

Watch this video about composting in schools - [Composting Video](#)

Say, "Composting is the act of taking items like food scraps, lawn clippings, cardboard, or other organic materials that would otherwise go to the landfill and upcycling it into nutrients to improve soil health. The items placed in compost bins or piles naturally decay, causing it to break down, and what is left can be spread to help improve the soil and grow plants. Did you know that compost is excellent for the environment?"

Say, "Compost helps with many different parts of the environment. Other than naturally improving the soil with its nutrients, compost can retain large amounts of water which helps with runoff, erosion, and water retention. Starting compost at home is easy. First, you must first assess how big of a compost pile you need. Some homes who have big backyard gardens should expect to have a bigger compost pile than a home that only has a couple of house plants. Also, if you have a lot of people in your household then there will be more organic waste than a household of one person."

For a bigger composting pile

You will need to designate an area in your backyard, that is roughly 3 feet by 3 feet. To start, you'll need to lay some twigs or straw on the bare earth. You won't need to till or dig a hole for the compost pile. After the layer of twigs is added, you will need to add some different layers to make your compost. The layers can include food scraps, dry materials like straw, leaves, sawdust, or wood ash, or you can also add manure or grass clippings as a green source. After adding different layers, you must remember to keep your compost pile moist by watering occasionally, turning every few weeks to keep it properly aerated, and covered to prevent over-watering, and keep the heat in. Now that the compost is made, you can add food scraps, your carbon, or green source as needed.

For a smaller compost bin

You will need a durable plastic bin, potting soil, a power drill, and red wiggly worms. After collecting your materials, have a parent or guardian use a power drill to make roughly 15-20 aeration holes in the plastic bin. Then place roughly 4-6 inches of potting soil at the bottom of the bin and add the red worms. The plastic bin is the home for the worms, and their food should be food scraps, lawn clippings, leaves, or straw. As the red worms eat these scraps, their digestive system converts it to a nutrient-rich material that will help your plants grow.

Strategies to Increase Student Engagement

Ask, "Has anyone heard of or know someone who has a compost pile?"

Continue with, "Think of objects in your day-to-day life that could be upcycled into compost instead of being thrown away."

Continue with, "Think about all the things you throw away in a typical day. How long would it take for those various items to break down? If you took all the trash in your trash can right now, buried it in your yard, and then came back one year later, what would still be there? What might not be?"

Think about your favorite food.

Composting is somewhat time intensive. Once you have all your materials and the correct ratios, it could take anywhere from two weeks to six months for compost to be ready to use. The reason behind this is decomposition—if certain materials take longer to decompose are added to the compost pile or bin, it will take longer until it is usable.

Experience

After learning about composting, say, “Let’s play Compost BINGO-go.” Pass out BINGO cards and pieces that can be used as markers. This could be seeds, corn kernels, candy, etc.

Say, “Fun Fact: Every item on the bingo cards can be placed into your compost pile.”

Print out the Student Worksheets, which include the Compost BINGO Sheet and the matching items that can go into a compost pile. After printing out and cutting the matching items, place them into a pile and have someone call out the items, while you match them to your BINGO card. If there are multiple players, print extra Student Worksheets.

Share

After assessing how big of a compost pile complements your family’s lifestyle, what do you need to start one?

Process

1. Do you know what compost is?
2. What items do you think make compost?
3. What impact can compost have on the environment?
4. What is erosion?
5. How can compost help with erosion?

Notes

Generalize

Ask, “What items can be composted?”

Some different examples of items that can be composted are lawn clippings, eggshells, coffee filters, coffee grounds, tea bags, manure. Different food scraps like fruits, vegetables, breads, cereals, leaves, twigs, newspapers, cardboard boxes, papers that do not have a shiny coating, and anything else that is biodegradable.

Ask. “What items cannot be composted?”

There are also items that cannot be composted, like heavily coated paper, cooking oils, rice, plastic, Styrofoam, anything treated with chemicals. Objects made of rubber such as tires, rubber bands, pool floats, or anything that does not naturally biodegrade.

Apply

Ask, “What type of composting system would work at your house with your lifestyle?”

Ask, “How many and what type of plants is your family growing (a big garden or a couple of houseplants)?”

Ask, “Do you have a big backyard where a compost pile can be made or will a smaller compost bin better suit your family?”

Ask, “How many people live in your house? Would it be enough to feed a compost pile?”

Ask, “Does your family eat a lot of fruits and vegetables (organic matter) or do they eat a lot of prepackaged items?”

Ask, “Can you give five examples of items in your daily life that can be composted?”

Ask, “Can you list five examples of items in your daily life that cannot be composted?”

Supplemental Information

Educational Standards Met:

Biological Change: Unity and Diversity

4.ESS1: Earth's Place in the Universe 1) Generate and support a claim with evidence that over long periods of time, erosion (weathering and transportation) and deposition have changed landscapes and created new landforms.

TIPPS ***Life Skills***

4th GRADE HEALTH -
Gather relevant
information for
decision-making

5th GRADE HEALTH -
Define issues of a
given problem or
situation

STUDENT WORKSHEET

Name: _____ Date: _____

Do you know what erosion is? If so, define it. _____

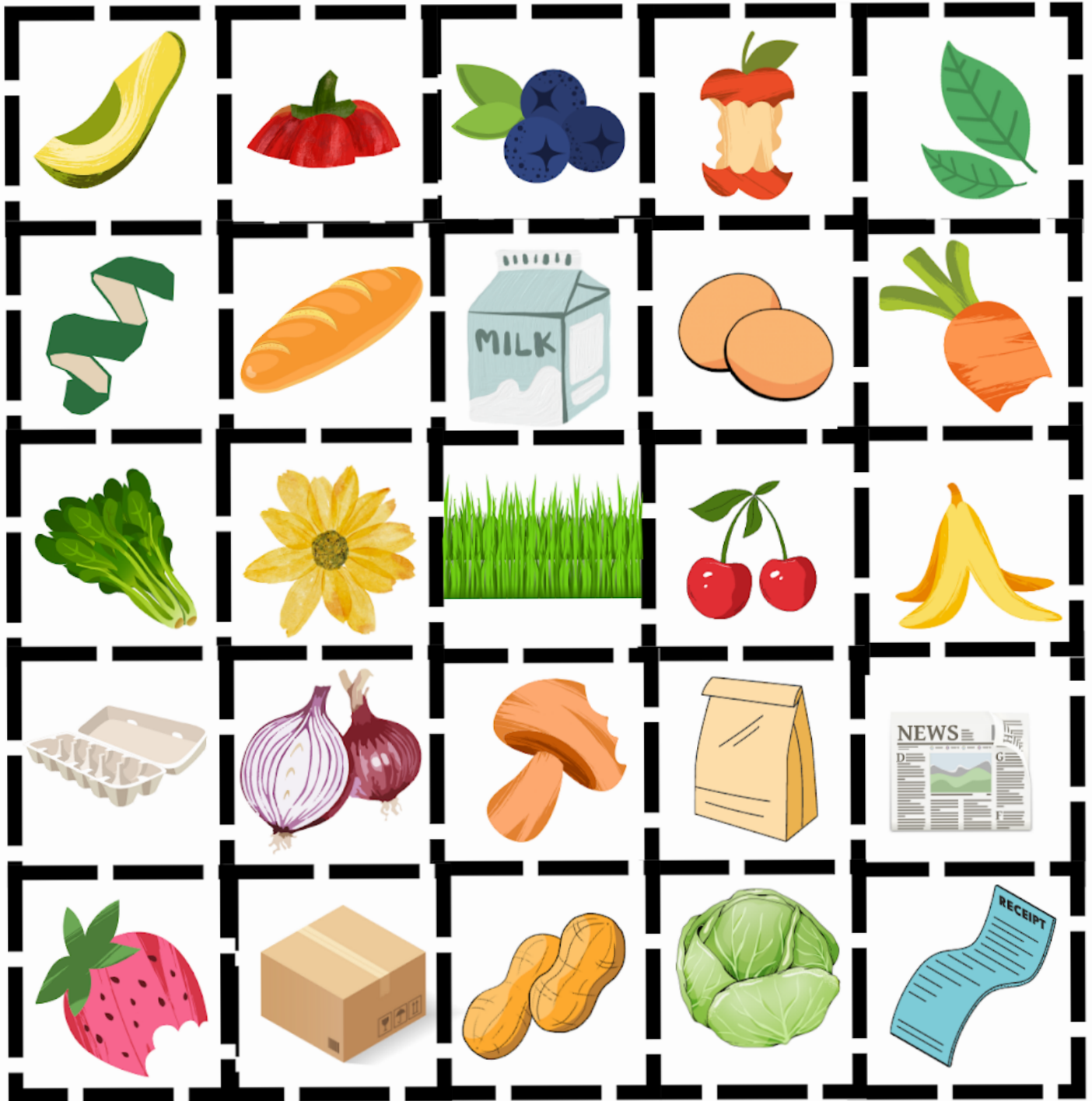
Compost has many different benefits to the environment. Can you remember the different benefits that compost has on the environment?

Compost provides nutrients to the soil, along with helping with water retention, erosion, and runoff. The way that compost helps with erosion is by binding soil together and increasing the infiltration rate of the soil, thus slowing the flow of water. Compost can also provide valuable nutrients to plants growing in the soil.

After learning about how compost helps with erosion and the environment, can you theorize what would happen to a slope in your yard after a heavy rain with and without compost? Which would be more susceptible to erosion?

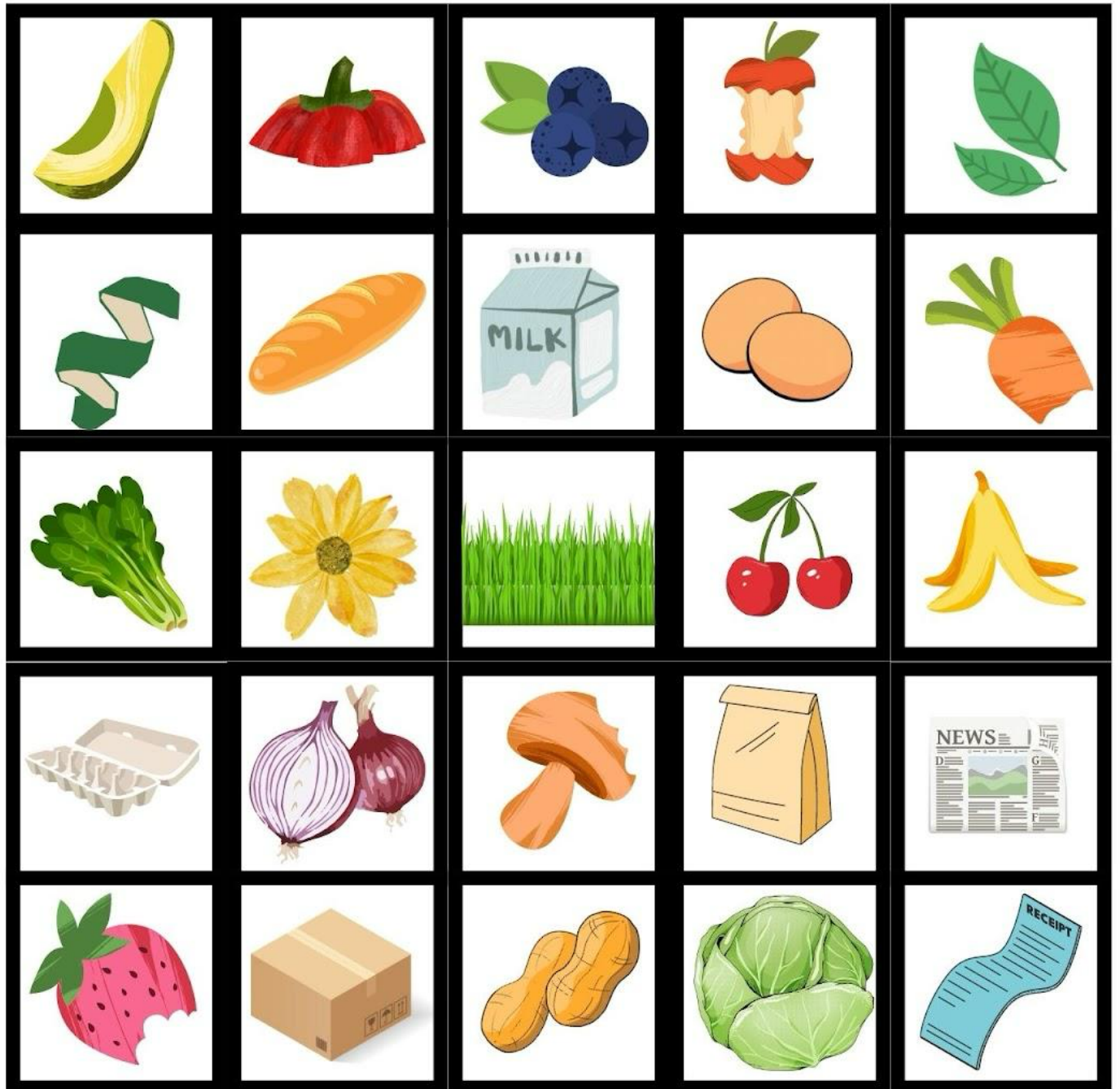
Can you give five examples of items in your daily life that can be composted?

Please cut out



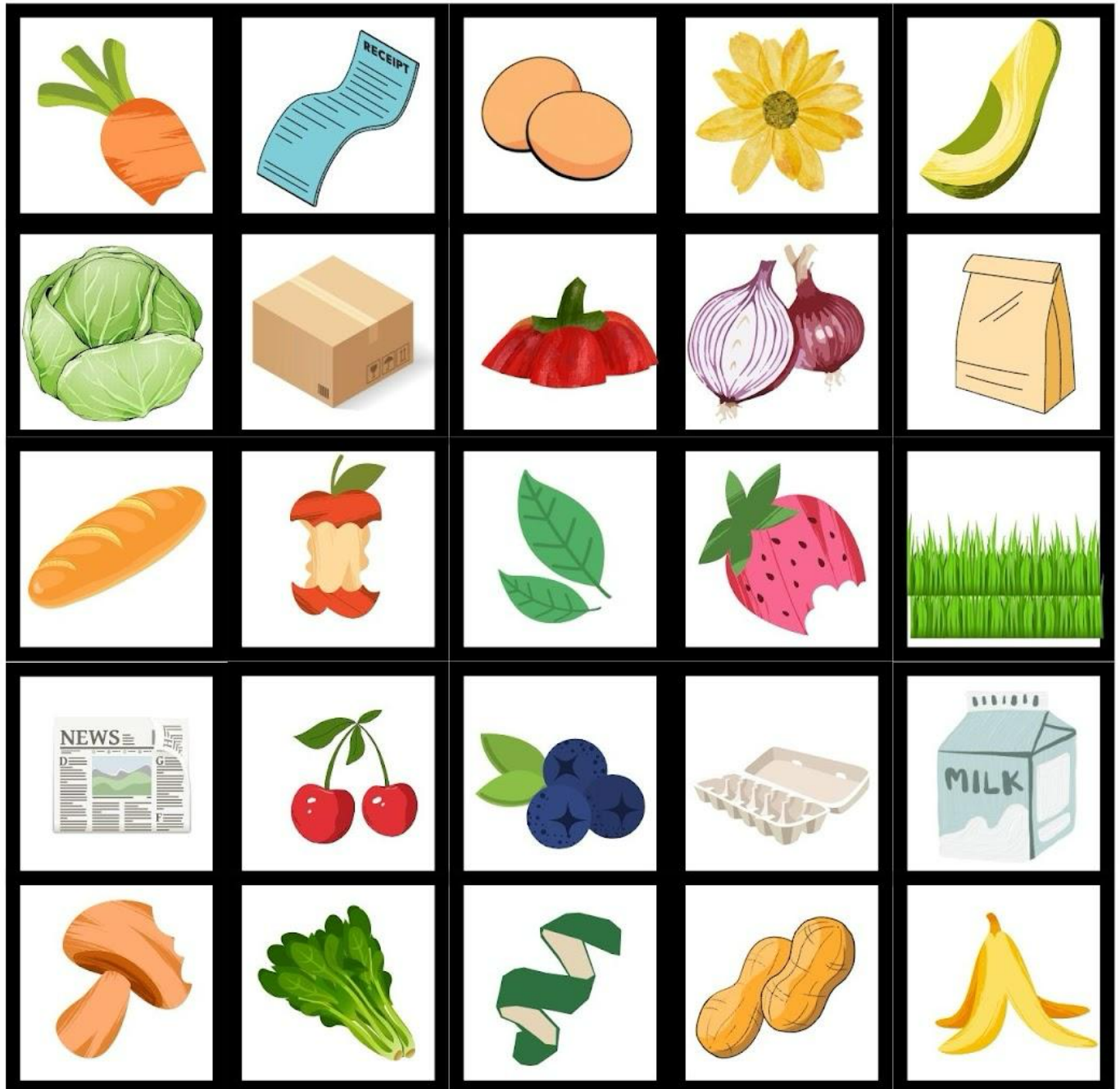
Composting

B I N G O



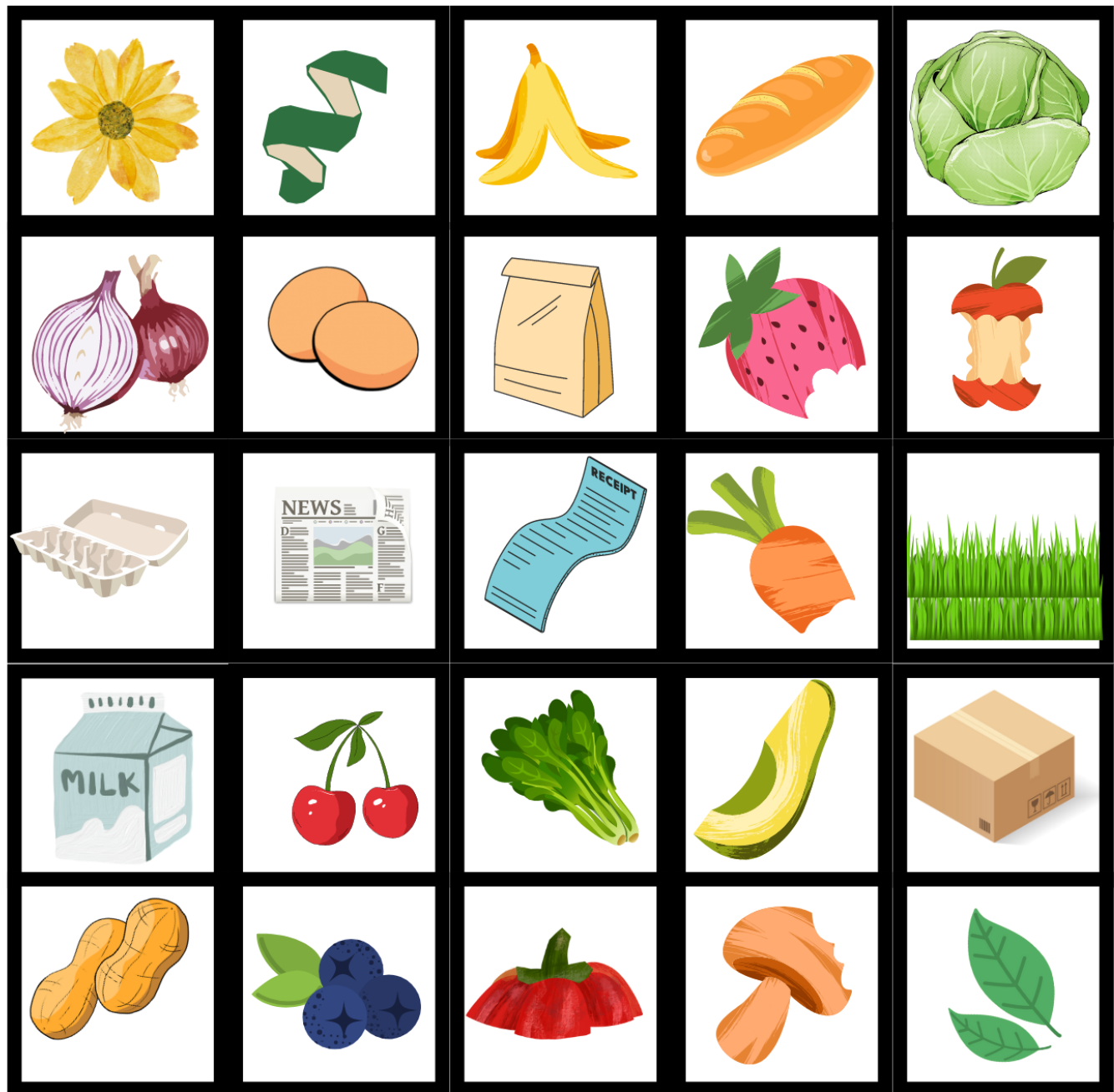
Composting

B I N G O



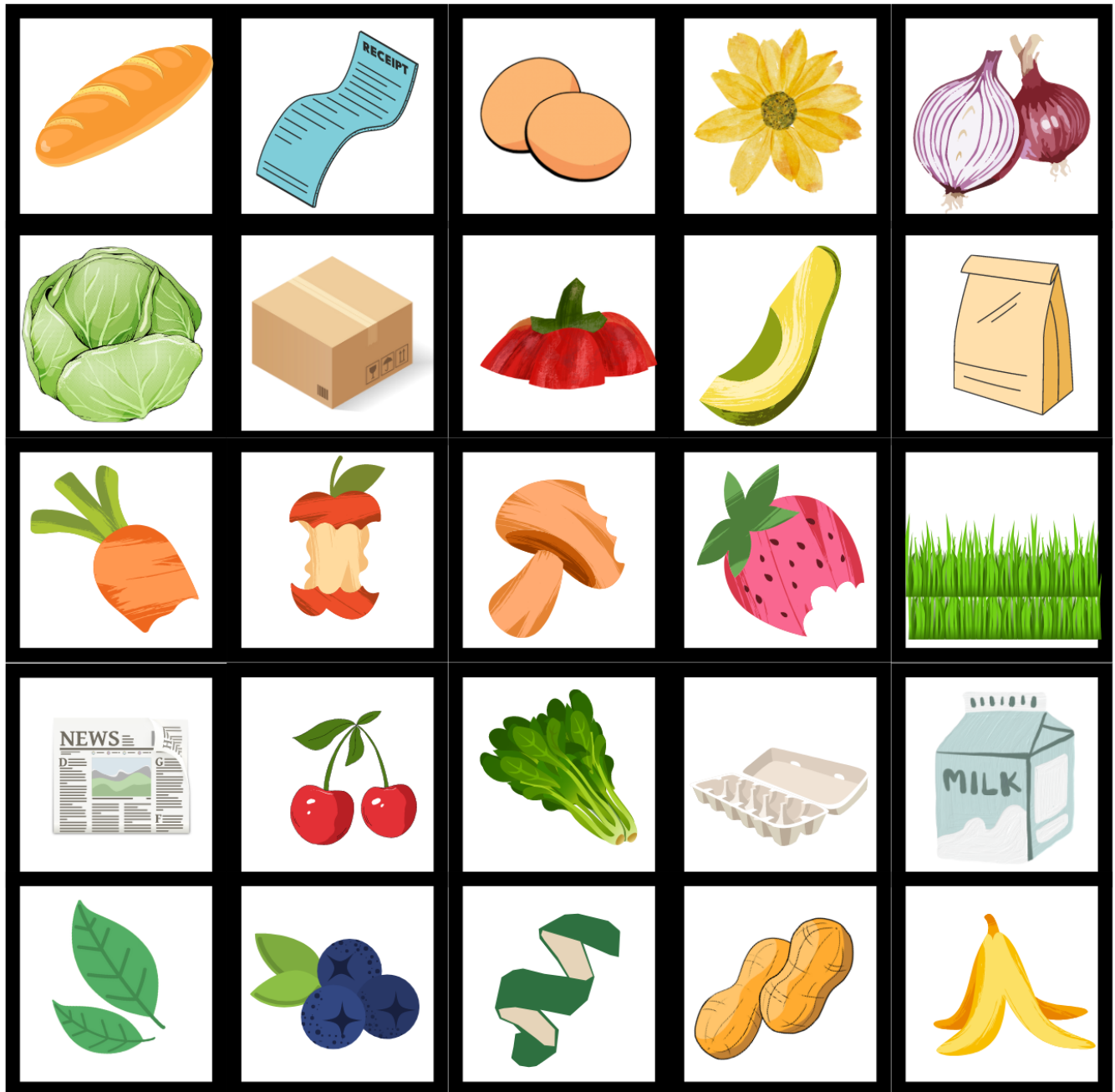
Composting

B I N G O



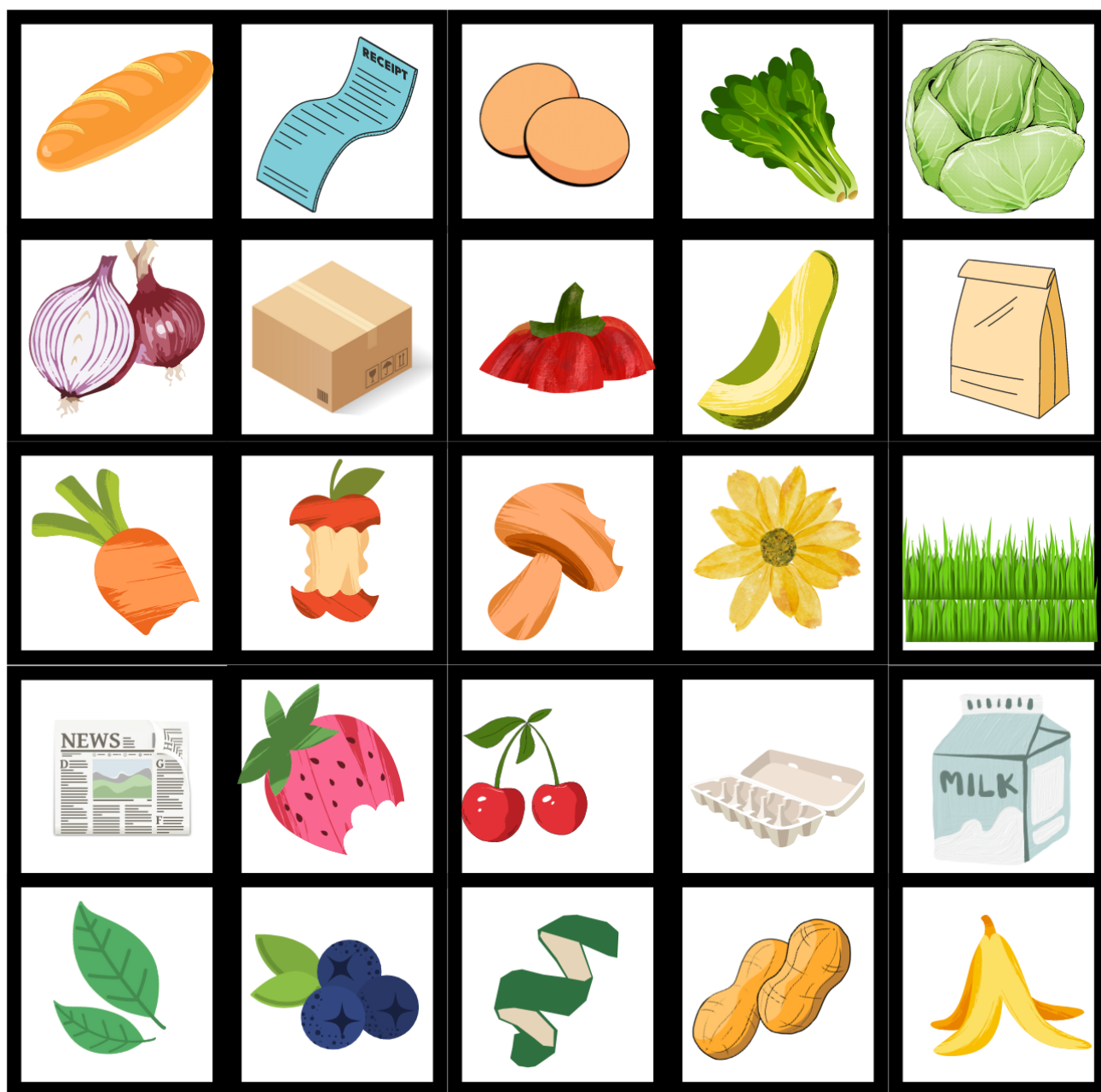
Composting

B I N G O



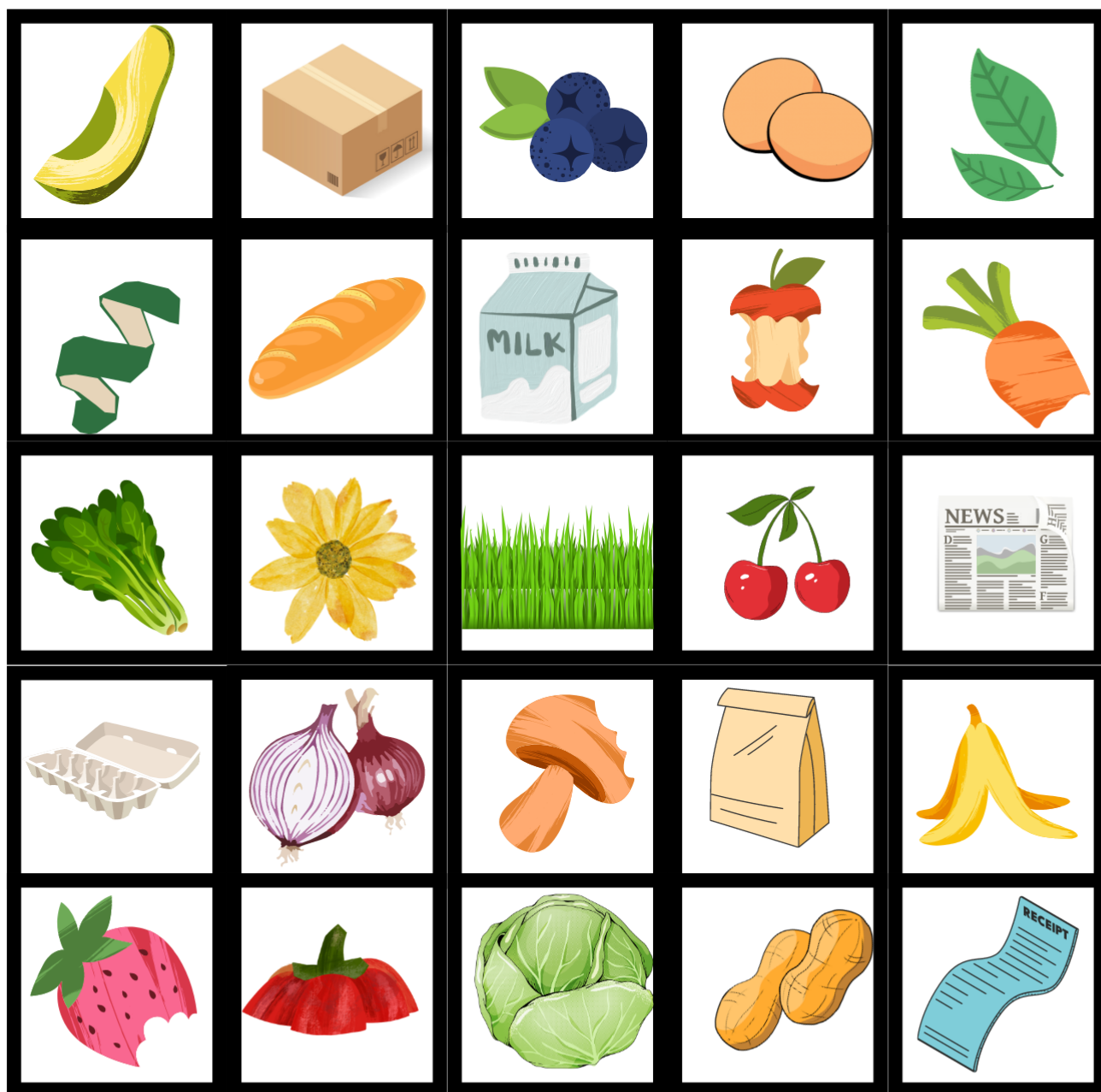
Composting

B I N G O



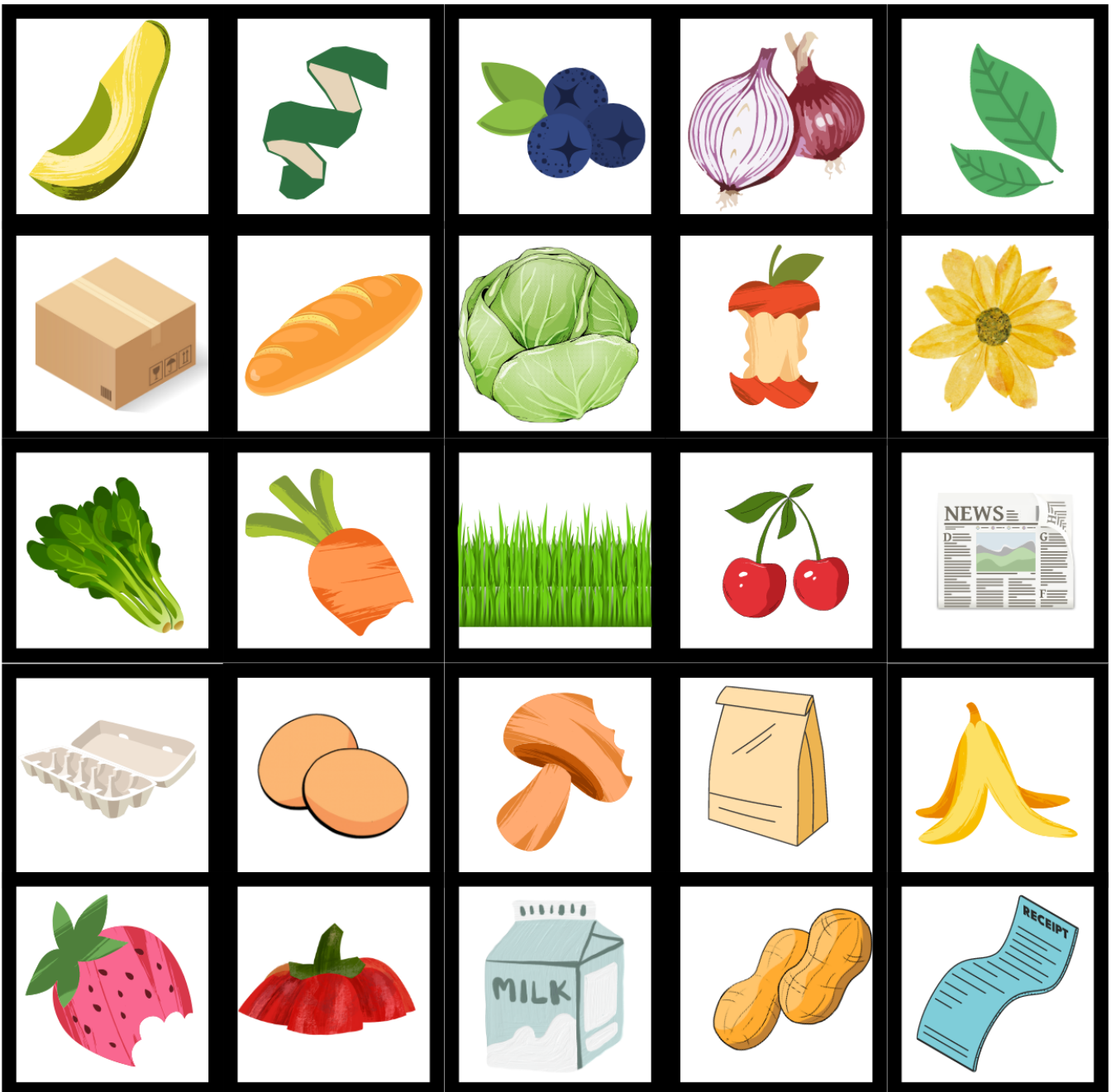
Composting

B I N G O



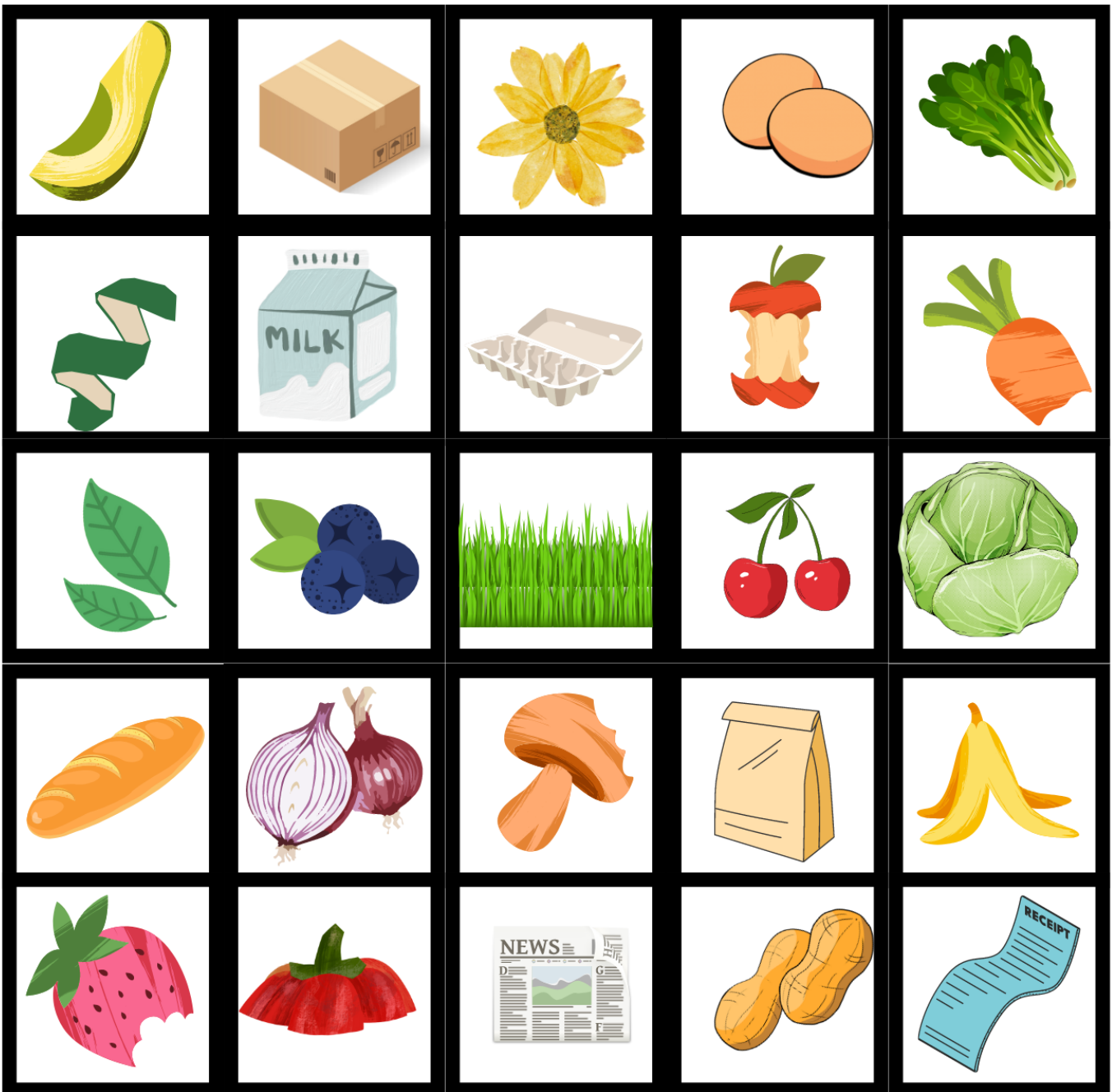
Composting

B I N G O



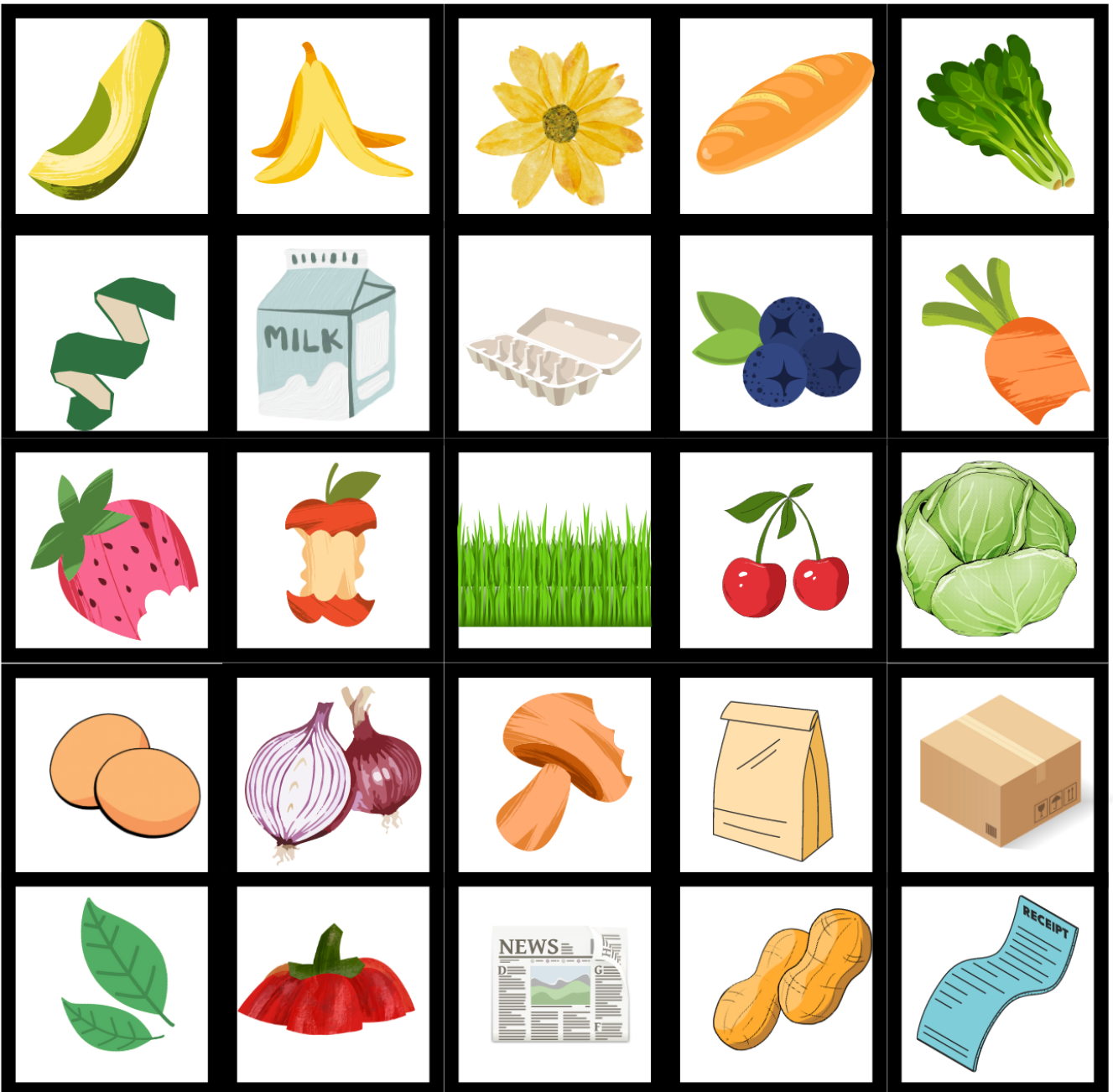
Composting

B I N G O



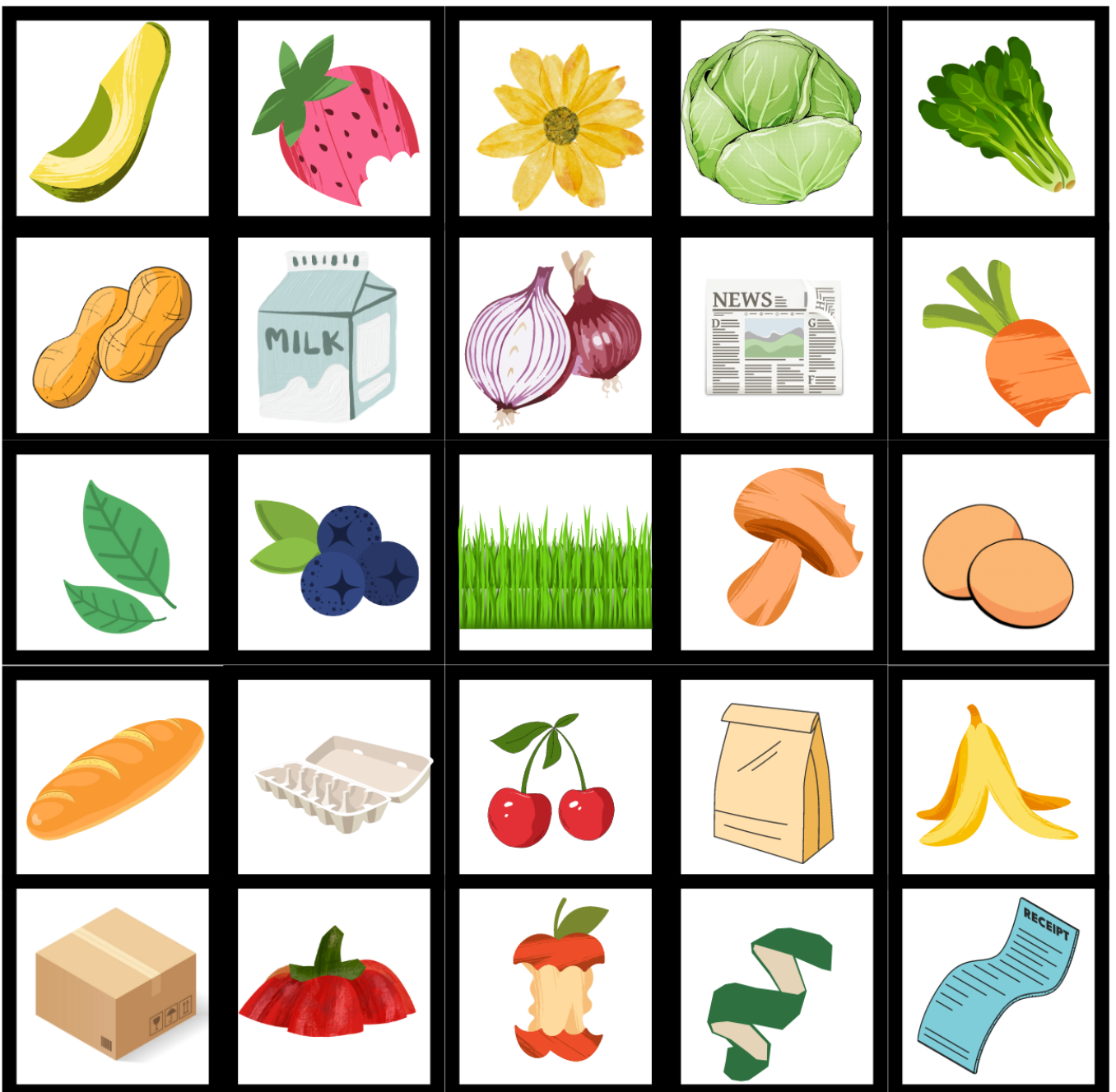
Composting

B I N G O



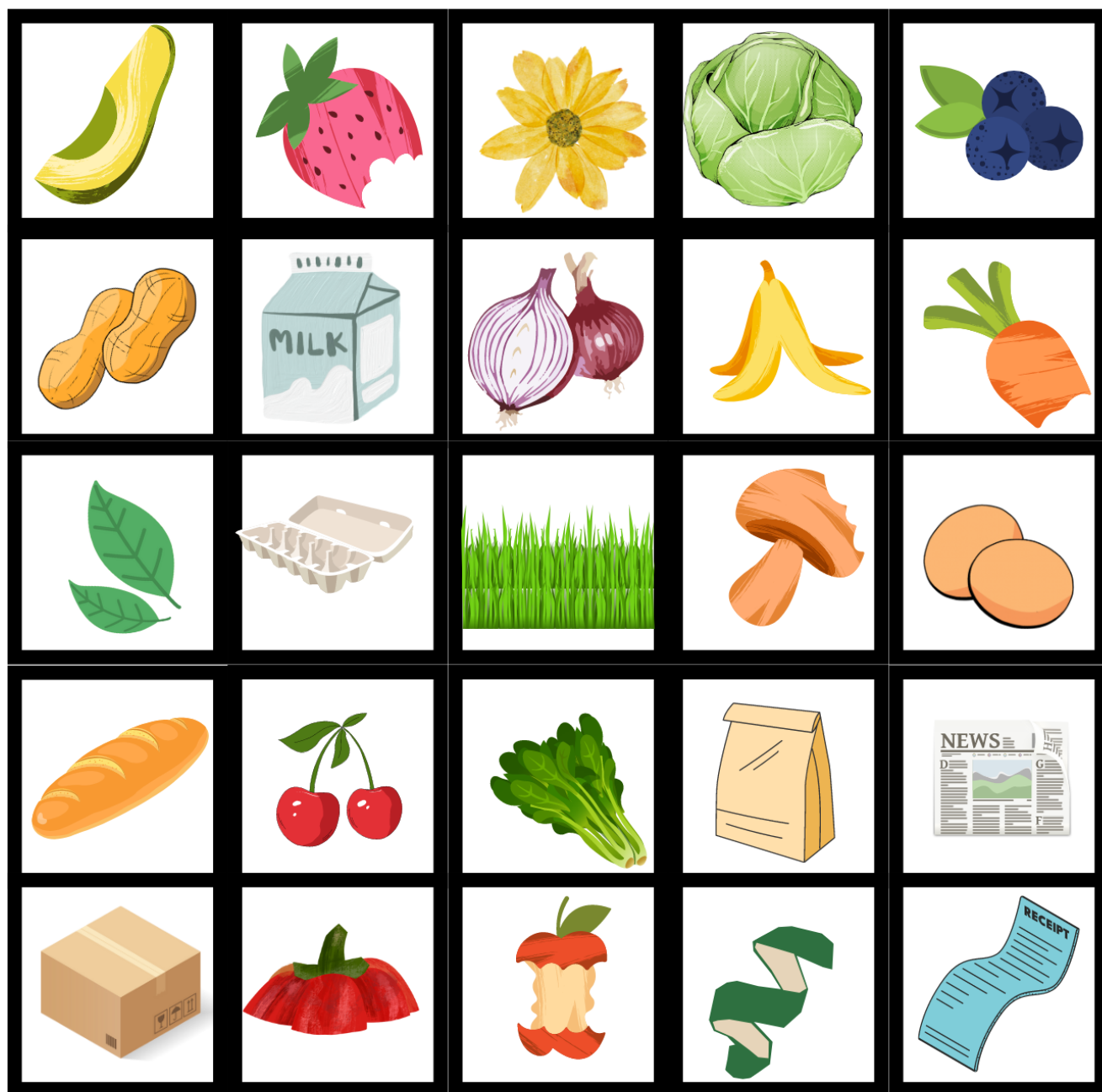
Composting

B I N G O



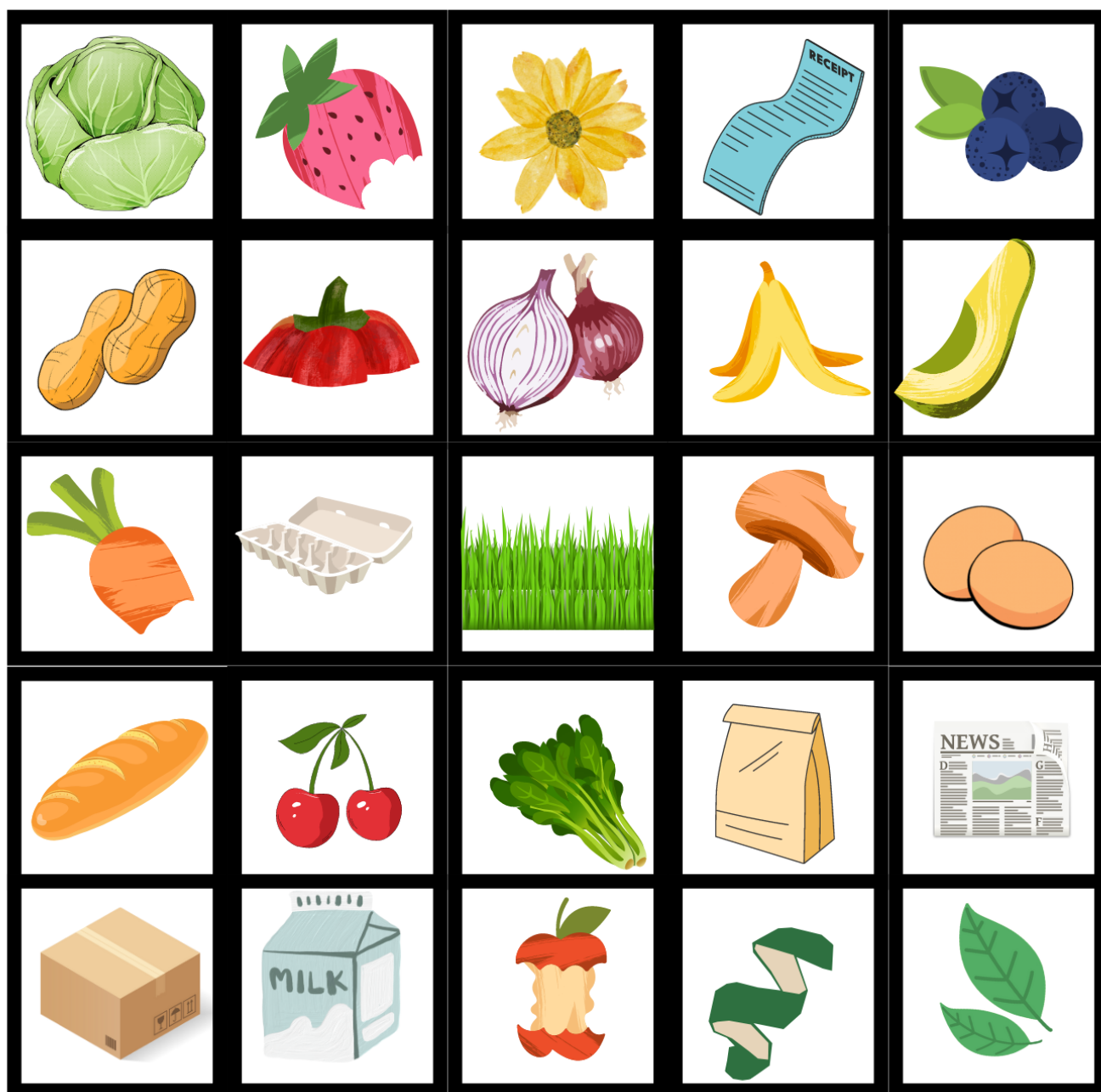
Composting

B I N G O



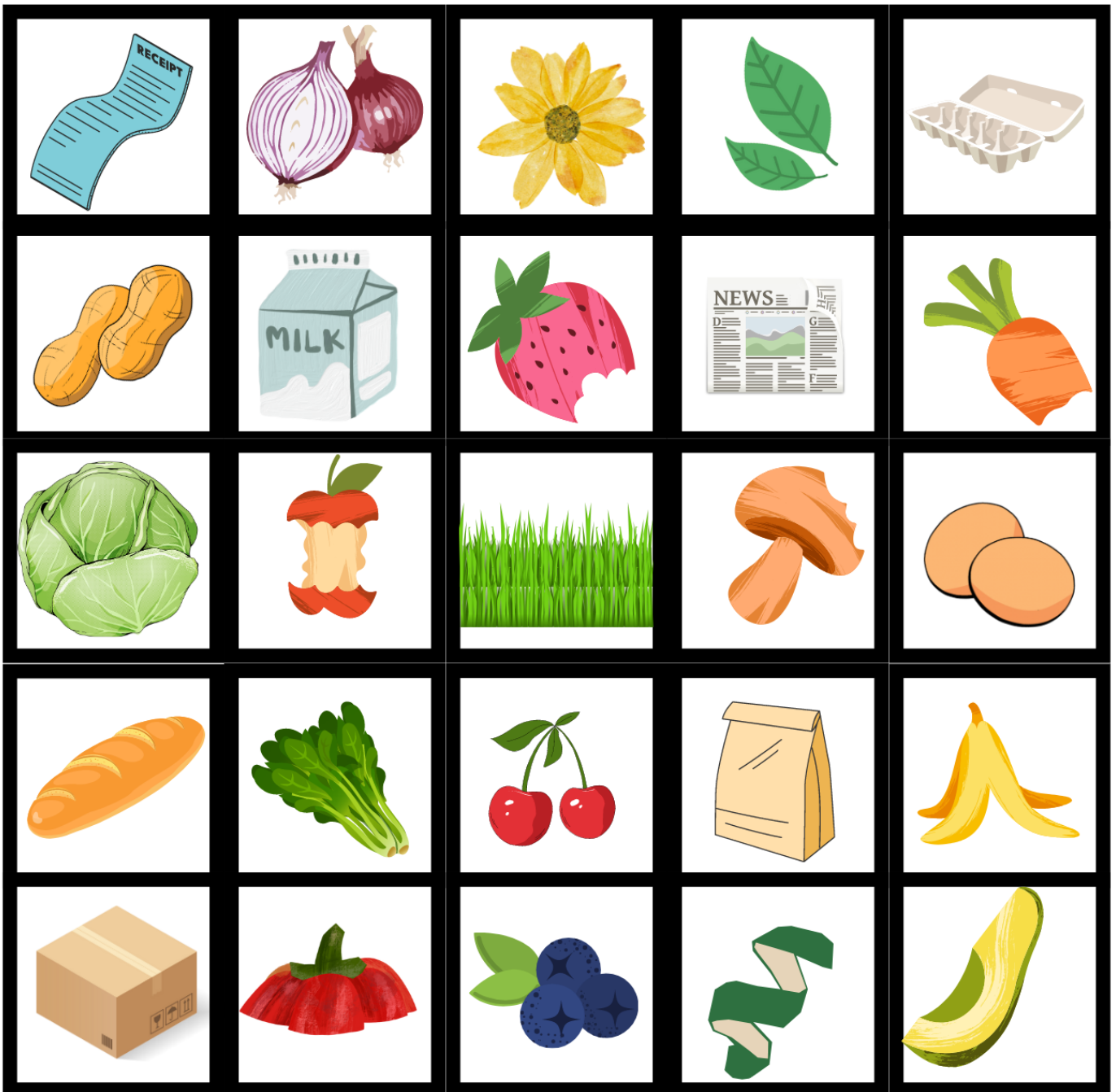
Composting

B I N G O



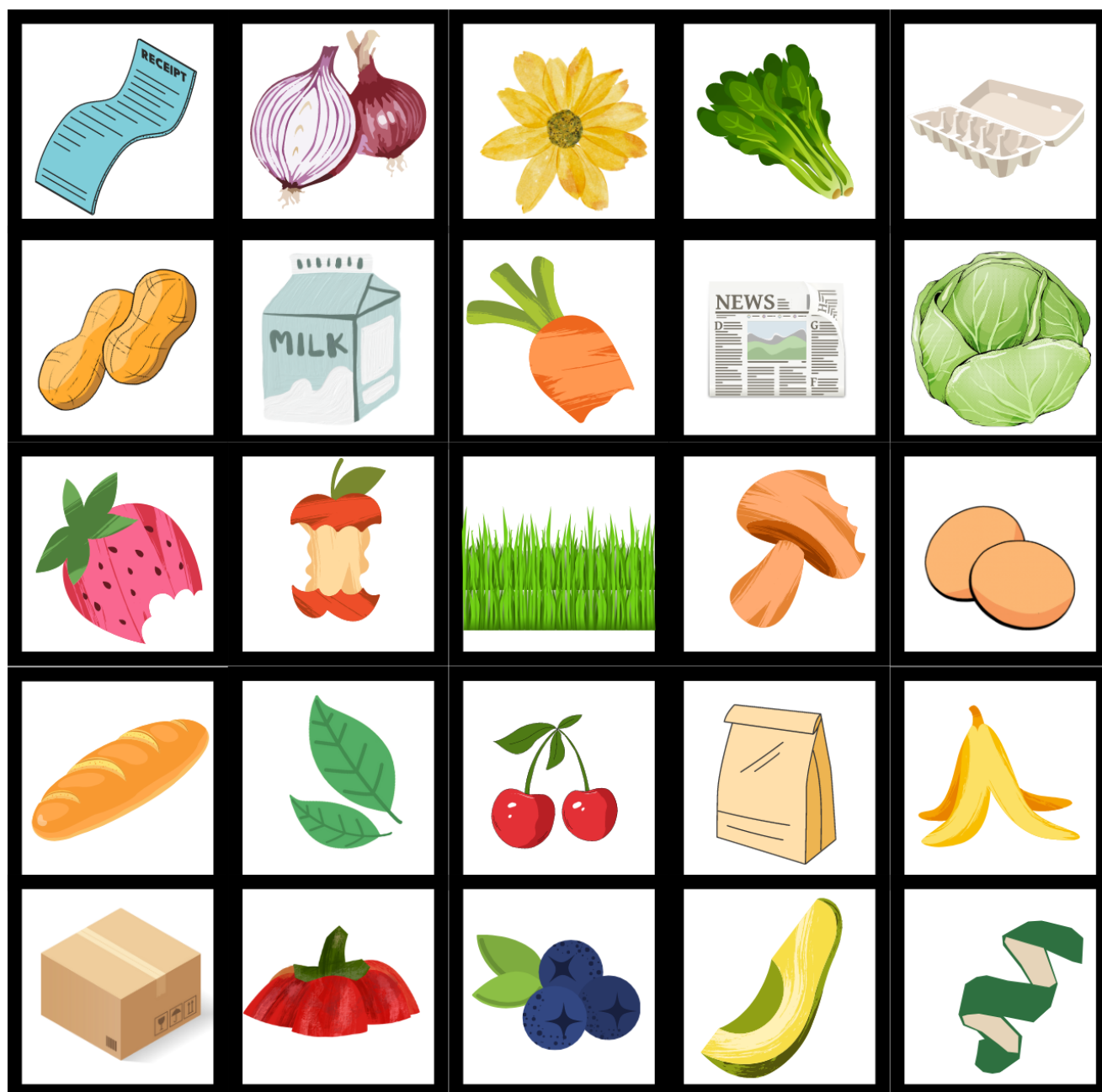
Composting

B I N G O



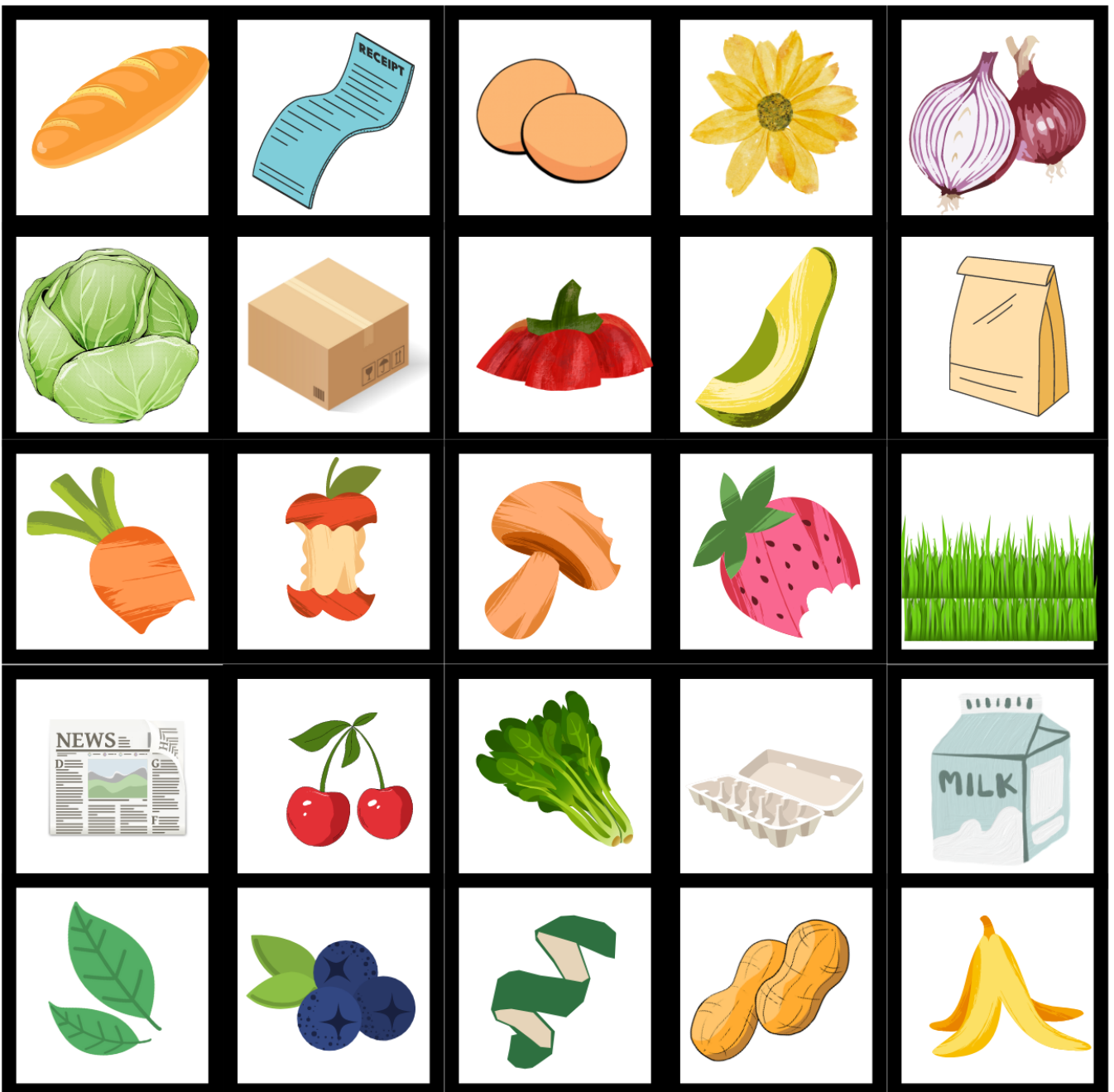
Composting

B I N G O



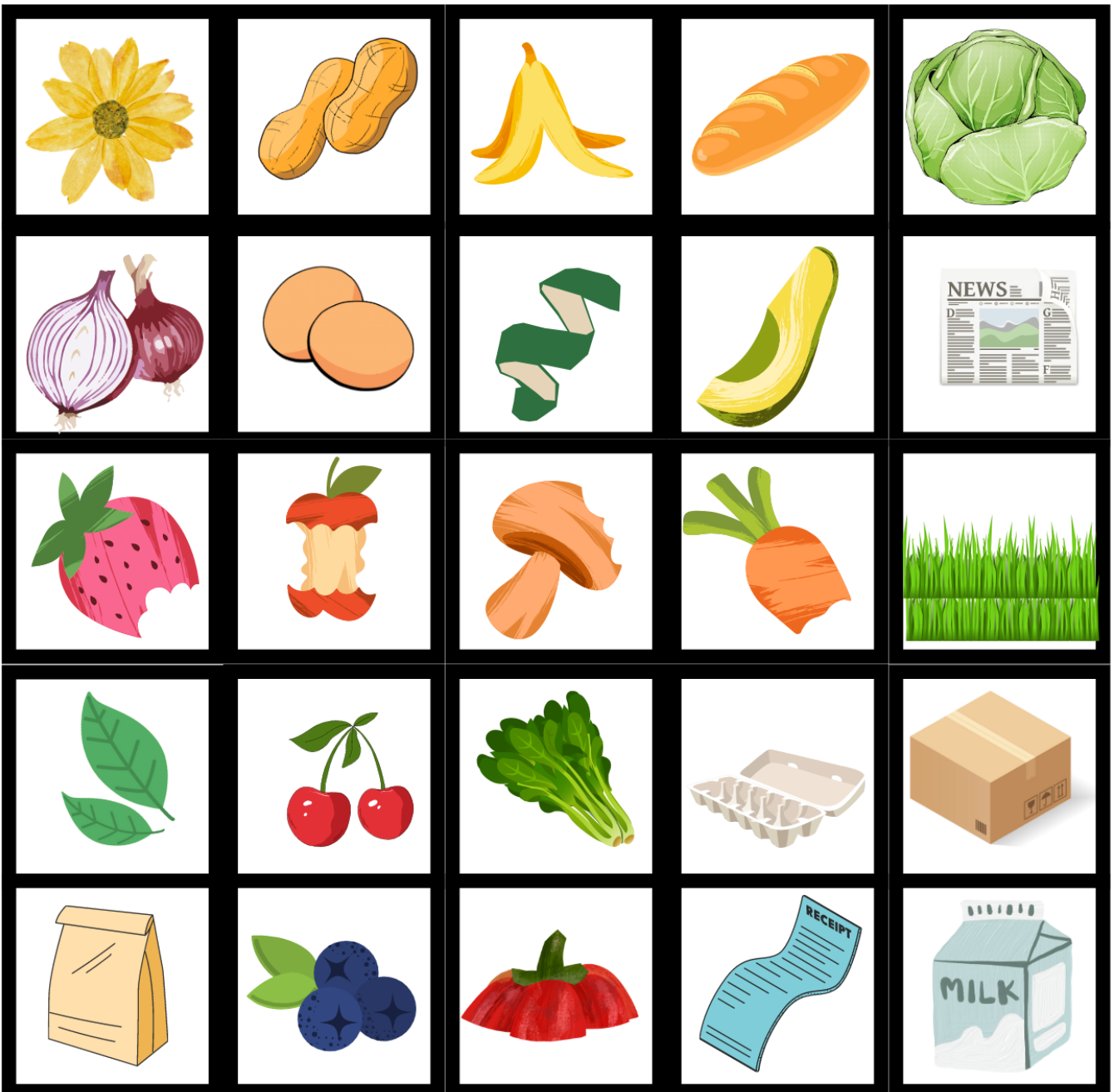
Composting

B I N G O



Composting

B I N G O





UTIA.TENNESSEE.EDU

Real. Life. Solutions.™