Lesson 2 — Heart Smart Kids on the Liquid Lookout

Part 1 – Heart Smart Kids
Estimated time: 30–40 minutes

Expectation 1: Students will demonstrate ways in which they can enhance and maintain their health and well-being.

Content Area – Physical Activity (PA)

PA2 – Students should investigate the relationships involving aerobic endurance, body composition, flexibility, muscular strength and endurance, and self-image.

Goal: To have students understand the FITT Principle (Frequency, Intensity, Time, and Type) and the importance of the circulatory system, as well as how to take their pulse and use an RPE (rating of perceived exertion scale).

Objectives
The students will be able to:

- Briefly explain the role and function of the circulatory system.
- Demonstrate at least one way to take a pulse.
- Explain the Youth RPE scale and its importance.
- Define the FITT Principle.

Think & Sink: Write the "Think & Sink" message on the board in the front of the classroom and in student journals. Ask students to think about the message and let it sink into their brains.

Do your part, be heart smart

Vocabulary: (Write on the board and discuss prior to the lesson.)

Circulatory System – The system by which blood, oxygen, and nutrients are delivered to, and returned from. the body via arteries and veins

Heart – Your body's pump, responsible for pumping blood, oxygen, and nutrients to your body

Oxygenated – Full of oxygen

Unoxygenated – Without oxygen

Lungs – The basic respiratory organ for breathing

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Vocabulary (cont.):

Veins – Blood vessels that carry blood, usually unoxygenated, from the tissues to the heart

Pulse – A number that represents how many times your heart beats in a minute

Ratings of Perceived Exertion – A scale used to measure how easy or hard (intensity) you're exercising (use Youth RPE chart to teach this concept)

Frequency – How often you're exercising

Intensity – How easy or hard you're exercising

Time – The length of your workout

Type – What type of workout you are doing (for example, biking or running)

Aerobic Exercise – Exercise that requires oxygen at the cellular level and is of a low-to-moderate intensity level that can be done for an extended period of time (for example, walking, biking, or swimming)

Anaerobic Exercise – Exercise that does not require oxygen at the cellular level and is of a high intensity level that can only be done for short amounts of time (for example, sprints or weight lifting)

Cardiovascular System – The circulatory system including the heart and blood vessels (i.e., arteries and veins).

Respiratory System – The group of organs responsible for carrying oxygen from the air to the bloodstream and for expelling carbon dioxide.

Arteries – Blood vessels that carry oxygenated blood from the heart to the tissues

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Previous Lesson Review: (Display ACTIVITY and FOOD PYRAMIDS)

Who can tell me one thing we learned in our last lesson about the types of foods we should be eating? *We can use the MyPyramid Food Guidance System to select foods from the color bands when planning our daily food intake.*

What foods are forbidden to eat? *None. All foods have a place in our diet.*

Why are some color bands wider than others? *Foods from the wider color bands (e.g., grains, vegetables, etc.) should be eaten more frequently than those in the more narrow bands (e.g., oils).*

What is the difference between essential calories and discretionary calories? We should make sure we eat most of our calories from essential sources (e.g., fruits, vegetables, grains, lean meats, etc.) and a small amount of calories from discretionary sources (e.g., butter, sugars, syrups, etc.).

Looking at the other type of pyramid we learned about, who can tell me why there are different activities at the different levels? *The activities at the bottom of the pyramid should be done every day, like playing. The activities at the top of the pyramid, like watching TV and playing video games, should be done less often.*

On Your Mark
Item needed:

- One copy of the KID'S RATINGS OF PERCEIVED EXERTION HANDOUT for each student.

Initiating Questions/Lesson Introduction:

1. Let's imagine we're sitting at home, watching TV. Who can tell me how we're feeling? *Relaxed, calm, restful.*

2. More specifically, if you close your eyes and imagine there's an invisible window in the center of your chest that'll allow you to look at your heart and the way it is beating, what would you see? *It would be beating slowly.*

3. That's right, when sitting around, not moving very much, your heart beats slowly. Now, if I asked you to stand up and run in place as fast as you can, how do you think your heart would respond? *It would beat faster.*

That's right it would beat faster to bring more blood and oxygen to the muscles that are being used.

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Learn It!
In part one of this lesson, we're going to learn about our *cardiovascular system* as well as our *respiratory system*, and how these important systems influence our health and physical performance.

Our *heart* and *blood vessels* (arteries and veins) make up our cardiovascular system. Our lungs and airways make up our respiratory system. These systems bring blood, oxygen, and nutrients to our bodies as well as take waste products away. Oxygen is contained in our blood. Without it, we cannot live or function.

Think for a moment about how gas stations get gasoline. Fuel trucks travel the country's freeways (or highways) to deliver gasoline to gas stations. Once there, they drop off the fuel and then go back to their "central" location for refueling. Imagine that our circulatory system is a powerful freeway and our oxygenated blood, the full fuel trucks. In our body, *oxygenated* blood travels down the "A" freeway (A = arteries), taking blood away from our heart, delivering it to the gas stations (i.e., organs, muscles, brain, etc.). Once our body uses the oxygenated blood, it becomes *unoxygenated*. The unoxygenated blood (empty fuel trucks) needs to get back to the lungs (central fueling location), via the "V" freeway (V=veins) to get re-fueled.

To keep the circulatory system healthy and oxygenated blood getting to its destination in a healthy, efficient manner, the heart needs to be strong and powerful. Exercise is one thing we can do to make our heart strong. When we exercise, our heart pumps blood, oxygen, and nutrients to our working muscles. The harder we exercise, the faster our heart beats. The number of times our heart beats in a minute is referred to as our *pulse.* Let's try and find our pulse…. There are a number of sites we can use to locate our pulse; our brachial pulse can be found at the brachial artery in our arm, near the inside of the elbow; our carotid pulse can be found at one side of our neck directly down from the corner of our eye, beneath our jaw; the radial pulse can be found at the underside of our wrist, using your first, middle, and ring fingers as you gently press along the radial artery directly aligned upward from your thumb.

When we exercise, our pulse rate increases. We can use a chart called the "Rate of Perceived Exertion Chart" to tell how hard or easy our exercise feels. Distribute KID'S RATINGS OF PERCEIVED EXERTION HANDOUT. Who can read and explain this chart to me? *Select a few children to explain what the numbers on the chart mean.*

So, let's go back to imagining sitting on the couch watching TV. If you had to assign a "number" to that activity, using this chart, which number would you choose and why?

A "1" because watching TV doesn't require much work or effort and your heart doesn't have to beat quickly—low pulse rate—low intensity.

Now, let's run in place as fast as we can for 30 seconds. *Children run in place*. STOP!

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Learn It! (cont.)

Now, using this chart, what number would you give to that activity? *Children share responses.*

Why is the number higher during the running in place activity? *Because it requires more energy; our heart has to work harder to pump blood, oxygen, and nutrients to our working muscles, it is more intense.*

How did your pulse respond to both of these activities? *It was slower during the sitting and faster during the running.*

Which activity would you consider "aerobic" and why? *The lower-intensity activity because it could be done for a long time.*

Which one would you consider "anaerobic" and why? *The high-intensity activity because it can only be done for a short time at that intensity before tiring out.*

Great job… So far we've learned about our circulatory system, and how we can check our pulse and rate how hard we're working using the Ratings of Perceived Exertion Chart.

When we're exercising, we need to keep a special acronym in our mind: FITT.

FITT stands for:
F = Frequency (how often)
I = Intensity (how easy or hard)
T = Time (how long did you do it)
T= Type (what type of exercise did you do)

So, if Sam (use one of your student's names) plays baseball for one hour, three times per week and rates his intensity a "5," let's see how we can apply the FITT principle:

> What is the frequency of Sam's workouts? *Three times a week.*
>
> What is his intensity, according to the Perceived Exertion Chart? *Pretty hard, a "5."*
>
> What type of exercise was Sam doing? *Playing baseball.*
>
> How much time does Sam spend working out each day he plays baseball? *One hour.*

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Let's Go!
Now let's try using the FITT principle with your own activities.

Who'd like to share first? (for example, Juanita says she plays soccer two times a week for one-and-a-half hours at a moderate intensity of about a "4.")

Review to make sure each student uses "ALL" components of the FITT principle when describing their own activities. Ask students to write a "FITT" statement in their journal.

Get Moving!

Rolling Dice Fitness

On Your Mark
Items needed:

- 1 set of dice for each team
- 5 - 5x7 index cards for each team
- Kid's RPE scale

Get Set
Divide students into teams or partners. Have each team/set of partners write the following items on their index cards. (One phrase per card.)

- Slow motion walking in place
  - RPE – 3
- Jogging in place
  - RPE – 5
- Hopping on one foot
  - RPE – 2
- Leaping from side to side
  - RPE – 5
- High knee marching in a circle
  - RPE – 1

Review the FITT principle and tell the students that the "Rolling Dice Fitness Game" will focus on the Intensity (using the RPE scale), Type (using different types of movement activities), and Time (using dice and a multiplier to determine length of time to do activity). Review the Kids RPE scale and have them demonstrate walking in place at the various RPE intensities (for example, walking in slow motion = RPE of 1 or 2 or walking as fast as you can = RPE of 5).

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Let's Play
Divide students into teams or partners. Each team/set of partners is given one die (younger grades) or two dice (older grades) and five index cards. Decide on a multiplier (for example, 5) and write this number on the board. All index cards are turned face down on the floor or desk area. One team member flips over a card (to indicate activity to be done). A second team member rolls the die/dice. Team members use the number on the die/dice, multiplied by the multiplier (written on the board) to determine the duration (time in seconds) of the activity. Students can use the second hand on a clock or count aloud in unison while completing the activity. The teacher or other student in the group can determine the intensity.

Note: For younger students, use an addend instead of a multiplier to determine the duration of the activity.

Check It!
1. Who can tell me the purpose of the circulatory system? *To deliver blood, oxygen and nutrients to and from the body via arteries and veins.*

2. Who can show me one way to take your pulse?

3. Who can tell me what the Ratings of Perceived Exertion scale is? Why is it important? *It is an important tool for helping kids identify how hard they are exercising.*

4. Who can define the FITT Principle and give me an example? *F=Frequency (How often? e.g., twice/week), I=Intensity (How hard? e.g., numbers on the RPE chart), T=Time (How long? e.g., 30 minutes), T=Type (What kind of exercise? e.g., walking)*

Journal Entry
Draw a picture of your favorite aerobic activity with a fun caption that could be used in an ad campaign to promote physical activity. For example, you could draw a picture of someone skating with the caption, "Make a date to get out and skate!"

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KID'S RATINGS OF PERCEIVED EXERTION CHART

Handout

Name_____

Ratings of Perceived Exertion Chart

Measure of how hard you think you are moving (heart is racing, face feels sweaty, out of breath, legs feel tired, etc.)

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Part 2 – Liquid Lookout
Estimated time: 30–40 minutes

Expectation 1: Students will demonstrate ways in which they can enhance and maintain their health and well-being.

Content Area – Food Choices (FC)

FC1 – Students should continue to learn about food classification systems and begin to learn about the nutrients in foods.

FC3 – Students should understand the effects food choices have on body composition.

Goal: To have students understand what to drink for proper hydration.

Objectives
The students will be able to:

- Identify at least two facts about milk.
- Identify at least two facts about water.
- Identify at least two facts about juice.
- Identify at least two facts about soda.
- Give one reason why water, juice, and milk are better to drink than soda.

Think & Sink: Write the "Think & Sink" message on the board in the front of the classroom and in student journals. Ask students to think about the message and let it sink into their brains.

Low-fat/Non-fat milk, 100% fruit juice, and water are healthy liquids to drink

Vocabulary: (Write on the board and discuss prior to the lesson.)

Dehydration – Excessive loss of water from the body

Nutrients – Any substance that provides nourishment for the maintenance of life and health

Calorie – A unit of energy

Dehydration – An abnormal depletion of body fluids

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Previous Lesson Review:

Who can tell me what food groups are found in the widest color bands of the MyPyramid Food Guidance System? *Orange=Grains (preferably whole grains), Green=Vegetables (preferably dark green, leafy as well as orange and beans), Red=Fruit, Blue=Milk/Dairy (low-fat or non-fat).*

Who can tell me what kinds of essential calories you ate yesterday? *Chicken, spinach, potatoes, cereal, pasta, yogurt, low-fat or non-fat milk, etc.*

Who can tell me what kinds of discretionary calories you ate yesterday? *Chocolate syrup in my non-fat milk, candy, cookies, an extra large serving of pasta, etc.*

Initiating Questions/Lesson Introduction:

On Your Mark
Items needed:

- One copy of the LIQUID LOOKOUT HANDOUT per student
- One copy of the LIQUID LOOKOUT WORKSHEET per student
- One container of low-fat milk
- One bottle of water
- One 12-ounce can of soda pop
- Ten teaspoons of granulated sugar
- One bottle of 100% juice (any size)
- One bottle of a juice drink (same size as 100%)

Last lesson we learned about the Food Pyramid and what types of foods should be consumed for higher nutrition as well as those that would be categorized as low-nutrition foods. Not only do we have to be concerned with the foods we eat, but also the liquids we drink. We have to be super spies when looking out for good healthy liquids to drink.

1. What kinds of drinks do you think are most healthy for your body? Why?

2. Are there any kinds of drinks you should limit and/or avoid? Why?

Make list of student responses on the board.

In this lesson, we're going to learn to be on the lookout for healthy things to drink.

Learn It!
Water is the most important nutrient in your body. Did you know that water makes up 65–70% of your body?

Draw a chart to show how much 65–70% of their body is.

How long do you think you could live without food? *A few weeks.*

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Learn It! (cont.)
How long do you think you could live without water? *A few days.*

That's not very long, which is why we need to drink at least eight cups of water each day. Also, since our bodies are mostly water, we need to keep in good water balance to avoid getting dehydrated. Drinking water can help us stay in good fluid balance. Another bonus is that water has no calories.

What other kinds of liquids do we drink? *Soda, milk, fruit juice, and sports drinks*. Soda doesn't give you many nutrients. Did you know that a 12-ounce can of soda has about 150 calories and 10 teaspoons of sugar? *(Measure out 10 teaspoons of sugar for a visual representation of how much sugar is in an average can of soda.)* Although it tastes good, it is full of sugar and supplies empty calories. Calories give you energy. If you take in more energy (calories) than what your body needs, your body saves them for later in the form of stored fat. If you never use them later, you gain additional body fat. Too much additional body fat puts you at risk for obesity, diabetes, heart disease, high blood pressure, and other life-threatening diseases. If you are going to drink soda, limit it to just once a week.

Other liquids you need to look out for are fruit drinks and sports drinks. Although they are usually healthier for you than soda, many of them contain too much sugar, which are empty calories and would be categorized as "discretionary calories." Some sodas also contain caffeine, which can make you feel jumpy, increase your risk of dehydration, and in some kids, even cause headaches. If you're going to choose a juice, limit it to one drink a day, and make sure it is 100% fruit juice, not a juice drink or blend. Reading the back of the label will tell you exactly what you are drinking. Watch out for words like corn syrup and sucrose, which are other ways of saying sugar and are also non-essential calories or discretionary calories. Let students examine the labels on the juice bottles and report their findings. Notice that juice drinks have ingredients like corn syrup and sucrose. 100% juice has no added sugar.

What liquid haven't we talked about yet? *Milk.* That's right. Milk is a great liquid for kids to drink, especially low-fat or non-fat milk without any added syrup or flavored powders. Milk is high in nutrition and isn't filled with added sugar (unless you're drinking the flavored kind…chocolate, strawberry, etc., which you should limit). Milk is known for having good amounts of calcium, which is a mineral you need to make and keep your bones and teeth strong.

So who can tell me which liquids should be at the top of you list? Water. Why? Because our bodies are 65–70% water, which means we need to keep in good "water balance" to avoid dehydration as well as to keep our body running smoothly. Water has no calories. What other drinks are healthy? Milk and 100% fruit juice. Who can tell me something they learned about water and 100% fruit juice? Milk is high in nutrients and low in added sugar, unless you drink the flavored ones. It is also high in calcium. 100% fruit juice is relatively high in nutrients and vitamins and low in added sugar. It does have calories, so we need to make sure we don't drink too much.

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Learn It! (cont.)
What kinds of drinks should we limit? *Soda, sports drinks, and fruit drinks.*
Why aren't these drinks your healthiest choice? Because they are full of sugar and sometimes contain caffeine. Also, most of them are high in calories, many of them being empty calories that provide few, if any, nutrients.

Let's Go!
Pass out the LIQUID LOOKOUT HANDOUT to each student and select students to read aloud and discuss.

Apply It!
Pass out the LIQUID LOOKOUT WORKSHEET and ask students fill it out.

Check It!
1. Who can give me two reasons why we should drink low-fat milk? *It's high in nutition and isn't filled with added sugar.*

2. Who can give me two reasons why we should drink water? *It doesn't have any calories and it keeps us from getting dehydrated.*

3. What are two facts you learned about juice? *We should limit juice to one glass a day and choose 100% because it doesn't contain added sugar.*

4. What are two facts you learned about soda pop? *Soda pop is full of sugar and can be high in calories.*

5. Why are water, low-fat milk and 100% juice better than soda pop? *Water, low-fat milk and 100% juice contain essential nutrients for our bodies and soda pop provides few nutrients.*

Student Journal
Write a poem using water as the topic.

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Liquid Lookout

Handout

Name_____

Are you thirsty?
Did you know that the same sugar that makes a sweet drink (e.g., soda pop, juice drink, etc.) taste so good can make you MORE thirsty than you were before!

To quench your thirst try:

- Low-fat milk
- Water
- 100% fruit juice

Instead of sugary drinks like soda to keep your body running smoothly.

LIQUID FACTS:

MILK
Low fat milk makes your bones happy!

Milk is the perfect drink for your bones because it has calcium and vitamin D in it. This helps your bones to grow strong.

Think you don't like milk? Give it another try! Drink it when it is really cold, you can even add ice cubes, flavored syrup, or powder (once in awhile) to your milk – YUM!

100% FRUIT JUICE
A lot of juices are mostly sugar and water! Try to drink only juices that say 100% juice on the label (not things like "fruit juice drink" or "fruit juice blend). Many 100% juices contain a lot of vitamins, but also contain sugars. Limit 100% juices to ONCE a day.

WATER
All living things must have water to survive. Water is the most necessary nutrient of them all - so necessary that people can't survive for more than a few days without it. More than half your body is made up of water! Take time throughout the day for a glass of water whether or not you feel you need it. If you wait until you feel thirsty, you increase risk of becoming dehydration. Drink water as OFTEN as you can.

SODA
Most sodas contain sugar and caffeine, which may speed up dehydration. A 20-ounce bottle of soda has about 13 teaspoons of sugar! LIMIT sodas to special occasions and choose a small can/glass.

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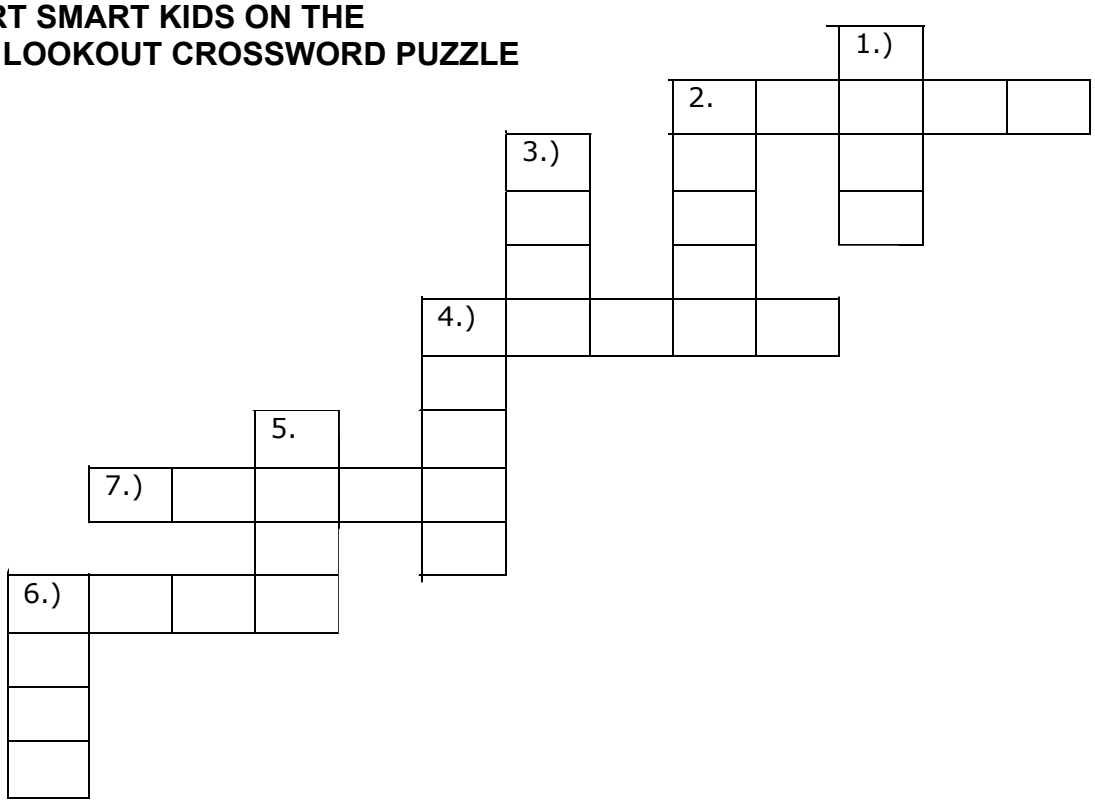
Liquid Lookout

Worksheet

HEART SMART KIDS ON THE LIQUID LOOKOUT CROSSWORD PUZZLE



Down

1.) The acronym that means Frequency, Intensity, Time, and Type of exercise.
2.) It's fun to do and it's exercise, too.
3.) Has about 10–13 teaspoons of sugar in each serving.
4.) All living things must have this to survive.
5.) Exercise and eat healthy foods for _____.
6.) This refers to how long you exercise.

Across

2.) You do this with liquids.
4.) Most necessary nutrient of them all.
6.) This refers to what "kind" of exercise you do.
7.) "No sugar added."

Here is a list of words to be used in the crossword puzzle.
*You may use words more than once

TYPE
MILK
JUICE
DRINK
FITT
WATER
SODA
TIME
DANCE
LIFE

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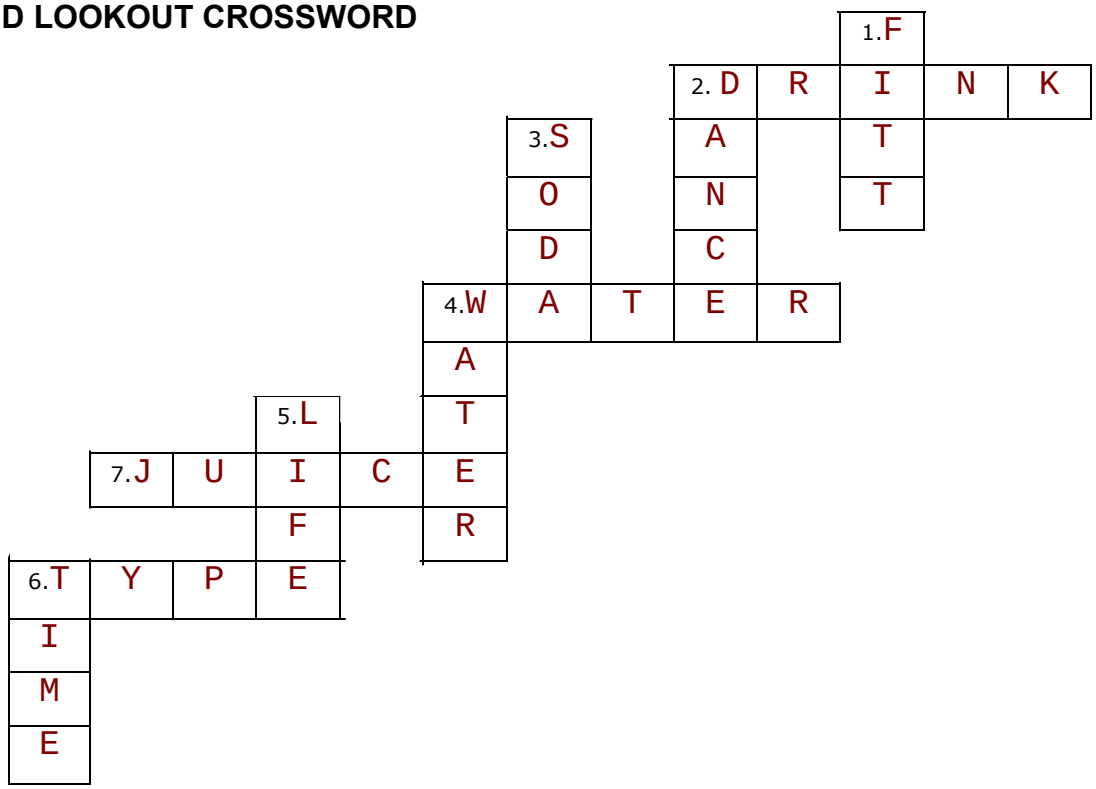
Liquid Lookout

Answer Sheet

HEART SMART KIDS ON THE LIQUID LOOKOUT CROSSWORD



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