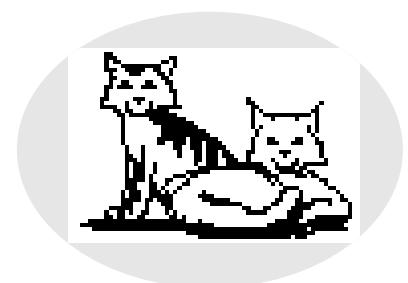


S A F A R I
S E A R C H

TEACHER'S GUIDE

TI-73



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~INTRODUCTION~

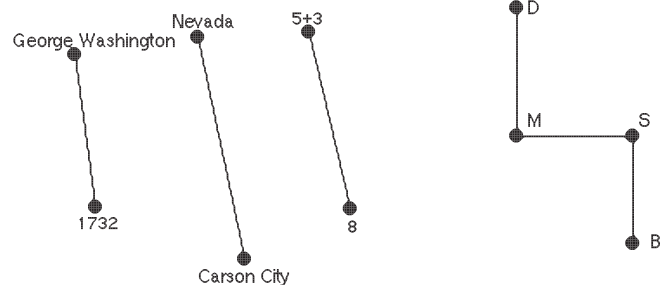
Much of present-day school education amounts to the transmission of associations or lists. In science, children learn Roy G. Biv for the colors of the rainbow (Red, Orange, Yellow, Green, Blue, Indigo, Violet).

In social studies, they connect names with names, and names with dates. Nevada? Carson City. George Washington? 1732. Lightning rod? Benjamin Franklin. Even the complex causes of the Civil War get reduced to four or five items on a laundry list.

In spelling, children learn long lists of phonic rules. “Memorize these lists and you will be a good speller.” Teachers report that this doesn’t work very well.

In math, things are much the same. As early as first grade, children chant out number facts and memorize them for speed tests. In second grade, they tackle the procedural steps of subtraction (a nightmare for most teachers), and later they take on longer procedural lists, such as “Dead Mice Smell Bad” (i.e., Divide, Multiply, Subtract, Bring down) – used for long division.

All too often, the picture of knowledge in American education looks something like this:



Now stop a minute and think about something you really know – your neighborhood, how to fix your Chevrolet, playing bridge or poker, writing a computer program, planning a nutritious breakfast.

Knowledge doesn’t amount to isolated connections and lists and procedures, although such connections are sometimes useful. Rather, knowledge is a fabric, a network. It is a web of information and relationships, and hunches and inferences in interaction with one another and with the world.



This fabric tends toward coherence, stability, economy, and generalizability. It is not a bunch of atomistic connections or lists stored in an inert memory bin. While knowledge of the list-type is achieved by copying (from the teacher, the textbook, one's neighbor, one's crib-notes, etc.), fabric knowledge comes from one's own actions – actions on one's present knowledge or on one's environment.

1. The first purpose of *Safari Search* is to cause children to construct complex mathematical thinking, that is, to construct a fabric. The fabric here involves one of the most basic mathematical activities – inference.

In their interaction with the Safari games, children gather information and use that information to infer with logical certainty the whereabouts of llamas, cats, and various other animals on a 5 by 5 Safari array.

Inference, widely ignored in the elementary school curriculum and often taught as a bunch of rote procedures at the secondary level, is one of the most important aspects of mathematical thinking. Did I say mathematical? Is inference a math-only ability? Certainly not. It pervades all of knowledge.

Note that no teaching takes place in *Safari Search*. But a lot of learning takes place. The learning is a result of children's actions – their guesses and their hunches and the beginning bits of fabric they weave as they gain feedback and evolve primitive approaches into complex thought.

Learning also takes place as children work with one another in interacting with *Safari Search*. Collaborative work (three children at a time, for example) is, by all means, to be encouraged.

2. The games range from very simple (in fact, random guessing) to very, very difficult. Each of the games calls for children to invent tactics to solve a problem. One major purpose of *Safari Search* is to provide an arena in which children invent and extend problem-solving tactics.
3. A third purpose of *Safari Search* is to call upon children to collect, organize, and use information. The *Safari Search* Grid (see



page 43) should be reproduced for the students in order to aid them in their data collection. Each of the games involves the collection of evidence, the judging of the importance of the information, the weaving of that information in with already-collected data, and the production of new information—namely the conclusion that a Safari animal is in box such-and-such.

4. *Safari Search* is an arena in which children learn that their own thinking is important, that they are not mere memory bins, and that they are, in fact, capable of extremely complex mathematical invention. This is especially so of what I call “doormat” kids, those who have had very little success in school.

Since school is often a matter of memory, many kids fail at what they see as meaningless, rote tasks. Given the chance to think rather than regurgitate, many children really soar for the first time! A major purpose of *Safari Search* is that players see themselves as able and inventive organizers of the complex, buzzing confusion that surrounds us all.

5. A fifth purpose of *Safari Search* is to enable children to work collaboratively with rich and powerful ideas and to enjoy themselves while doing so. The experience of generating, trying-out, and sharing ideas is an interesting and fruitful way to learn. That is—dare I say it?—a major purpose of *Safari Search* is to enable kids to have fun!

THOMAS C. O'BRIEN



~INSTALLATION~

HARDWARE AND SOFTWARE REQUIREMENTS

Make sure you have the following items:

- TI-GRAPH LINK™ computer-to-calculator cable. If you do not have a TI-GRAPH LINK cable, call your distributor, or order the cable on-line at the TI Accessory Store (www.ti.com/calc/docs/store.htm).
- Connecting TI-GRAPH LINK cable adapter, 9-pin to 25-pin, if needed.
- Computer with Windows® 3.1x or Windows® 95/98 installed. (A Windows NT® version will soon be available.)
- *Safari Search* software for the TI-73 on disk.
- A TI-73 calculator.

Things to Check Before You Begin

To make sure the batteries in your TI-73 are in good working condition, turn on your TI-73. If there is a low-battery message on the screen, turn the TI-73 off and follow the battery replacement procedure in Appendix C of your TI-73 Guidebook.

Before you load *Safari Search* to your TI-73, verify that sufficient free space exists in your application memory space by entering 2nd MEM, 3:Check APPs. The first line indicates the number of free spaces available. *Safari Search* will take up two spaces in the memory. See the Memory is Full instructions in the Troubleshooting Section for details about deleting applications.

IMPORTANT:

DO NOT interrupt the installation process. If any errors are encountered during the installation, follow the instructions. Error Recovery instructions are also described in the Troubleshooting Section of this guide.



TEACHER NOTE

The TI-73 may briefly display a “Defragmenting” message. This simply means the calculator is preparing for downloading.

INSTALLING SAFARI SEARCH TO A TI-73

1. Make sure the TI-GRAPH LINK cable is firmly connected to the calculator and the computer and the calculator is at the home screen.
2. Start Windows and close all desktop applications that may be running (another running application could interfere while *Safari Search* is updating your TI-73).
3. Select Run from the File menu (Windows 3.1) or Run from the Start menu (Windows 95). In the Run dialog box, type C:*directoryname*\ti73safa.exe (where *directoryname* is the directory to which you saved the *Safari Search* file) and then click OK.
4. Follow the on-screen instructions to complete the installation.



~OVERVIEW~

Safari Search offers ten search activities. In each activity, students must find one or two animals on a 5 by 5 grid.

Use the CLUE option in the menu bar to gather clues. Each box contains important information. Put the clues together to locate the hidden animal(s).

Since the clues vary from one game to another (refer to the Activity Overview on page 9), students must create a new or revise an existing strategy for each game. For example, students who play *Catch the Kittens* after playing *Search Out the Seal* will see that the games are related in that the clues for both involve rectilinear distance; however, in *Catch the Kittens*, students face the additional challenge of determining to which kitten a clue applies since there are two animals to be found instead of one. In this case, then, students may be able to use a search strategy for *Catch the Kittens* which is based on their strategy for *Search Out the Seal*. On the other hand, students who play *Discover the Dragon* and then go on to *Collect the Kangaroos* will find that their new game will require a whole new approach.

The different strategies your students devise will not necessarily be right or wrong, but rather, some will be more effective than others. The goal for your students will be first, to come up with a strategy, and then to find ways to improve it. The Same Game option provides a nice opportunity for students to challenge themselves or classmates to find the animal(s) using fewer clues.



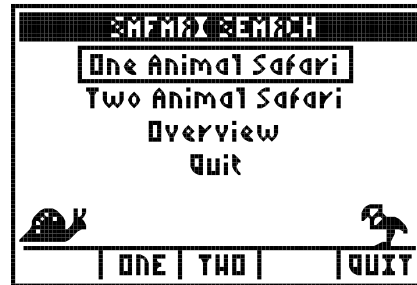
~ACTIVITY OVERVIEW~

ACTIVITY	NUMBER OF ANIMALS	TYPE OF CLUE	USE FIND/CATCH
<i>Find the Flamingo</i>	1	whether your guess is touching the side, corner or no part of the flamingo's box	
<i>Search Out the Seal</i>	1	the rectilinear distance from your guess to the seal's location	
<i>Locate the Loon</i>	1	whether your guess touches the box which contains the loon	✓
<i>Discover the Dragon</i>	1	how many dragons are in the same row or column as your guess	✓
<i>Detect the Donkey</i>	1	whether the donkey is above, below or to the left or right of your guess	✓
<i>Catch the Kittens</i>	2	the rectilinear distance to one of the kittens	✓
<i>Round up the Rhinos</i>	2	the rectilinear distance to each of the rhinos	✓
<i>Sight the Snails</i>	2	how many snails are in the same row or column as your guess	✓
<i>Collect the Kangaroos</i>	2	whether at least one kangaroo is above, below or to the left or right of your guess	✓
<i>Capture the Cats</i>	2	whether both cats are above, below, or to the left or right of your guess	✓



~GETTING STARTED~

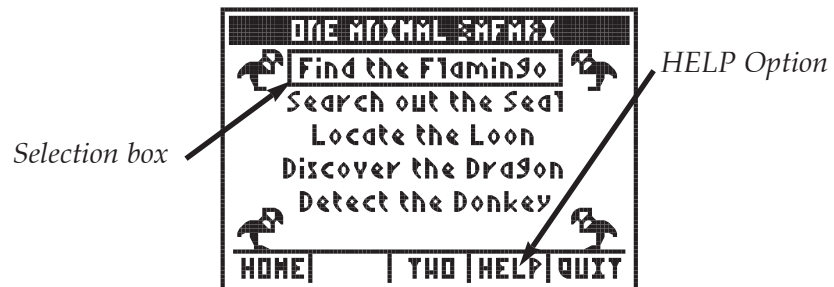
When you begin *Safari Search*, the following title screen will appear.



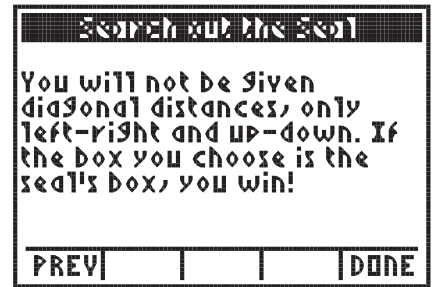
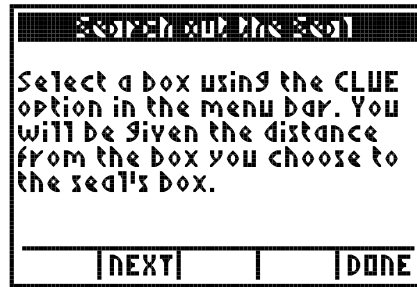
Use the arrow keys on the calculator to highlight the items on the menu list or select one of the items from the menu bar along the bottom of the screen by pressing the corresponding calculator key.

Selecting One Animal Safari or ONE from the menu bar will allow you to see a list of names of the activities involving one animal. Selecting Two Animal Safari or TWO will allow you to see a list of names of the activities involving two animals. Selecting Overview will open a brief description of the program. Selecting Quit will allow you to quit *Safari Search*.

If you select One Animal Safari from the list, you will see a list of the 5 safaris that involve one animal.



Before selecting a safari you can access information about the game by using the **HELP** option on the menu bar. Use the arrow keys to move the selection box to highlight the safari you would like to play and then select **HELP** from the menu bar. The help instructions will appear on the screen. The instructions will give you information about how to play the game.



Once you have selected a safari by highlighting it and pressing ENTER, you are ready to play.

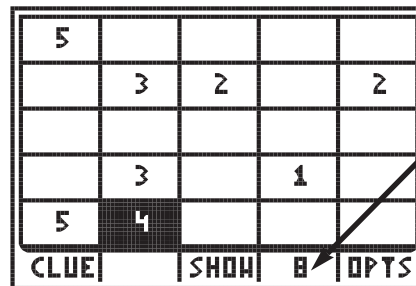


TEACHER NOTE

Each clue will remain on-screen only until a new clue is uncovered.

At the game screen, you are ready to begin collecting clues. Use the arrow keys on the calculator to move the cursor over the boxes on the grid. Select **CLUE** from the menu bar when you want to see the clue. A number representing the distance to the seal will appear in the box. You can keep collecting clues across the grid until you have found the hidden seal.

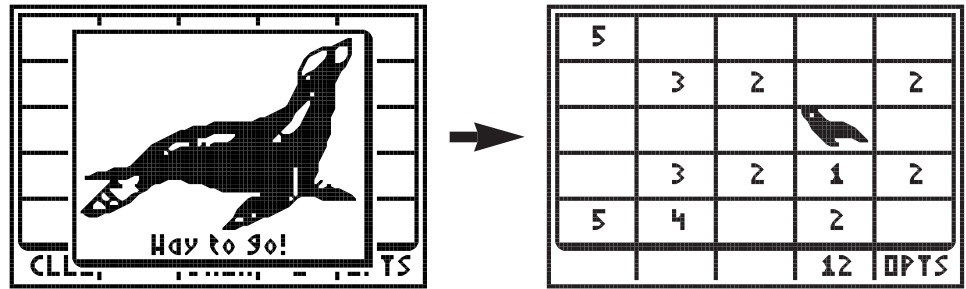
If you would like to review all of the clues you have gathered so far, select **SHOW** from the menu bar.



Number of clues collected

Notice that the number of clues you have used is indicated in the menu as the fourth option. Every time you select on a box (even if you have selected it before!) the number of clues will increase by one. You may use an unlimited number of clues or reviews.

When you think you have located the seal, highlight the box and select **CLUE** from the menu bar. If you are correct, the seal will appear on the screen in it's own box with a congratulatory message. Next, all the clues you gathered will reappear in the grid and a small version of the seal will appear in the box where you found him.



If you are incorrect, a number representing the distance from the box to the correct location of the seal will appear and you may continue to try to locate the seal.

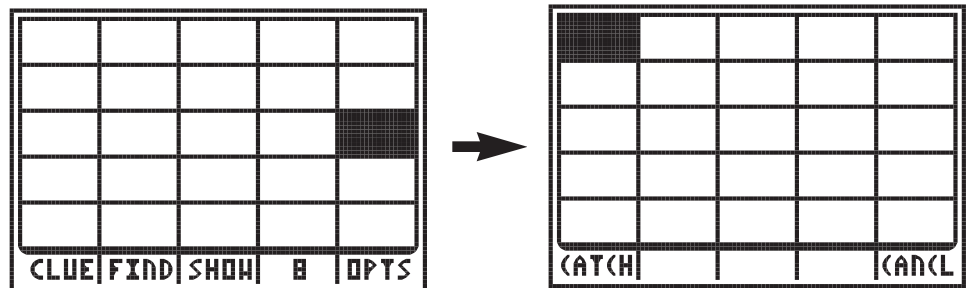
 **TEACHER NOTE**

*In many activities, you must select **FIND** and then **CATCH** from the menu bar to locate the animal(s). In activities which require **FIND**, the game ends after an incorrect guess. Use the Same Game option to continue your search - with the animal(s) hiding in the same place(s). All clues, however, will be cleared.*

FIND AND CATCH

The simplest two activities – *Find the Flamingo* and *Search Out the Seal* – do not require you to use the **FIND** and **CATCH** options to guess the location of the animal. In these two games, if you select the actual location of the flamingo or seal by highlighting the tile in the grid and selecting **CLUE**, you will see the animal rather than a clue.

In the other eight activities, use the **CLUE** option to gather clues. When you are ready to guess the location of the animal, select **FIND** from the menu bar and you will be taken to the **CATCH** screen.



From the **CATCH** screen, you can use the arrow keys to move to the location of the first animal and select **CATCH** and then move to the second location and select **CATCH**. If both of your selections are correct you will see a congratulatory screen and the animals will appear. If one or both of your guesses are not correct, the activity ends. At this point, you may begin a new game or try the same game again.



You can access game instructions at any time during the game by selecting **OPTS** from the menu bar and choosing Game Help. These instructions are specific to the game you are playing.

Once you have completed an activity you can choose to play the game again, play a new game or switch to a different safari for a greater challenge!

~PROGRAM DESCRIPTION~

As students look for the different animals in Safari Search they will be exposed to a variety of clues. As they analyze their clues they should keep in mind that distances will always be rectilinear (rather than diagonal) and that using the arrows to search up or down means anywhere above or below the arrow (not only in the arrow's column) and likewise, searching to the left or right means anywhere to the left or right of the arrow (not only in the arrow's row).

Some games are similar to one another in that they use the same type of clue, but offer a different level of challenge. For example,

- *Search Out the Seal, Catch the Kittens, and Round up the Rhinos* all provide clues concerning distance.
- *Discover the Dragon* and *Sight the Snails* offer clues which tell you how many animals are in the same row and column as your guess.
- *Detect the Donkey, Collect the Kangaroos, and Capture the Cats* give directional clues relative to your guess (whether at least one or both animals are above, below, or to the left or right of your guess).



TEACHER NOTE

In Collect the Kangaroos and Capture the Cats only, two unique solutions may exist. The calculator will accept either one.

MENU BAR OPTIONS

CLUE OPTION

By selecting **CLUE** in the menu bar, you will receive clues about where the animal(s) is hiding. A number of different types of clues can be collected: logic clues, distance clues, quantity clues, directional clues. All the information needs to be put together in order to locate the animal(s). Directional clues, which are given within the games *Detect the Donkey, Collect the Kangaroos* and *Capture the Cats*, take a little more effort to collect than the rest of the clues because you will need to choose which direction you want to search. Once you select **CLUE**, the menu bar will be replaced with direction arrows which you can select from the menu bar, or you can press the arrow keys on the calculator for the desired direction.



FIND/CATCH OPTIONS

When you know where the animal(s) is hiding, select **FIND** from the menu bar. This selection will change the menu bar, leaving only 2 options available – **CATCH** and **CNCL** (cancel). Once in **FIND** mode, use the arrow keys to move to the box where you think the animal is located. Select **CATCH** while over the box and if you are playing a One Animal Safari game, you will know automatically whether or not you have guessed correctly. If you are playing a Two Animal Safari the selected box will turn checkered and you will be able to move over to where the other animal is and select **CATCH** again. Remember, you have only one try to locate the animal(s)!

SHOW OPTION

At any time during the game if you would like to know the clues you have already gotten, simply select **SHOW** from the menu bar and a review of all the clues will show on the screen. The review will remain on the screen until another option is chosen from the menu bar.

O OPTION

The number of clues you have collected will appear in this option of the menu bar. Every time you choose **CLUE**, the number will increase by one (even if you have selected the same box before!). Selecting this option will display a dialog box telling you how many clues you have collected.

OPTS MENU

Once this option is selected a numbered list will appear in a dialog box in the middle of the screen. There are six options in the list and their descriptions follow:

1. Same Game: allows you to replay a game
2. New Game: allows you to begin a new game
3. Change Safari: brings you back to either the One or Two Animal Safari menu, depending on which game you were in when you selected this option
4. Safari Help: brings you to the specific help for the game you are playing
5. Overview Help: bring you to the overview instructions which describe the game in general
6. Quit: brings up a dialog box which asks you if you want leave *Safari Search*



You can select an option by highlighting it and either selecting **OK** in the menu bar or by pressing the corresponding number. If **OPTS** is selected by mistake, use the **CNCL** option in the menu bar to return you to the game.

QUIT OPTION

You may quit the program at any point during the game in one of four ways:

1. Selecting **QUIT** from the menu bar on the HOME, ONE and TWO Animal selection screens.
2. Selecting **QUIT** from the **OPTS** menu accessed from within a game.
3. Pressing the [2nd] and then the [QUIT] buttons on the calculator.
4. Pressing the [ON] button on the calculator.

Choosing to quit at any point in the game will bring up a message box asking you: "Are you sure you want to leave *Safari Search*?" Selecting **NO** will bring you back to the game. Selecting **YES** will quit the program.





FIND THE FLAMINGO



Objective

A flamingo is hiding. Find it!

Strategy

In *Find the Flamingo* the feedback is extremely useful in suggesting powerful, economical search tactics.

- If the box you chose is the flamingo's box, you'll see the flamingo.
- If the box you choose touches the side of the flamingo's box, you are HOT. If your box touches the corner of the flamingo's box, you are WARM. If the box you choose does not touch the flamingo's box, you are COLD. You have as many chances as you need to find the flamingo.

Suppose you begin by selecting the indicated square and get this result (below, left). What do you know? You know with certainty the flamingo is in one of the two indicated boxes (below, right).

				WARM
CLUE		SHOW	2	OPTS

				WARM
CLUE		SHOW	2	OPTS

What's your next move?





SEARCH OUT THE SEAL

Objective

A seal will hide in one of the boxes. Your job is to search out the seal.



Strategy

For each choice you make, you will be given the distance from the box you choose to the box where the seal is hiding. You will not be given diagonal distances, only left-right and up-down. You have as many chances as you need to search out the seal.



TEACHER NOTE:

See the *Getting Started* section to review a sample of how the game is played.

- If the box you chose is the seal's box, you'll see the seal.
- If the seal is not in that box, you'll see a number clue. Keep searching.

Remember "locus" problems from your high school math? (For example, show all the points on this paper which are 10mm from a given point. Answer: a circle with radius of 10mm whose center is the original point.) *Search Out the Seal* is an activity that brings together all the richness of traditional locus problems, while remaining within the scope of third and fourth graders.

In general, without luck, how many bits of information do you need to search out the seal?





PROGRAM DESCRIPTION

You might go on to choose another box and get this response (below, left). Now you can narrow down the loon's location to one of the following four boxes (below, right).

CLUE	FIND	SHOW	3	OPTS

CLUE	FIND	SHOW	3	OPTS



DISCOVER THE DRAGON



Objective

The dragon is hiding among the caves. Your task is to find it.

Strategy

Select a box with the **CLUE** option in the menu bar. The calculator will look in your box's row (left-right) and column (up-down). You will be told how many dragons (0 or 1) are seen. When you think you've found the dragon, select **FIND** and use **CATCH** to uncover the box where you think the dragon is hiding. You have only one chance to reveal the dragon.

- If you are correct, you'll see the dragon.
- If the box does not contain the dragon, you'll see "Sorry! That's not correct.", an X will appear in the box and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.

Suppose you have made several moves and have obtained information as shown in the following review (below, left). A zero (0) in a box tells you the dragon cannot be in the row and column of that box. A one (1) says the dragon is in the row or column of that box. Thus, here are the three possible locations of the dragon (below, right).

		1	1	
	0		0	
CLUE	FIND	SHOW	4	OPTS

0		1	1	0
	0		0	
CLUE	FIND	SHOW	4	OPTS

What's your next move?





DETECT THE DONKEY



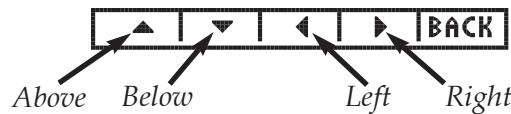
Objective

Find the hidden donkey.

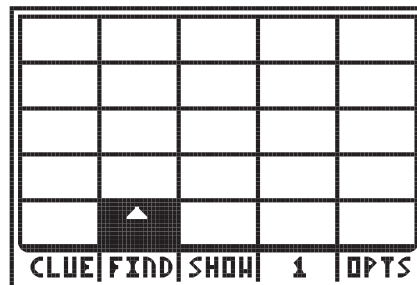
Strategy

To find the donkey, you can ask questions about its relative location such as: "Is the donkey left of this box?" or "Is the donkey below this box?"

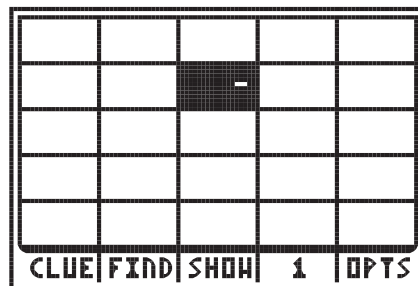
You pose these questions by selecting a box with the **CLUE** option and then choosing one of the arrows from the new menu bar that appears.



Each of your questions will receive a **YES** or **NO** response.



- A **YES** response will be followed by an arrow pointing in the chosen direction. This arrow indicates the donkey is in a row above this box.



- A **NO** response will be followed by a dash in the chosen direction. This dash indicates the donkey is not located in a column to the right of this box.

When you have enough information to detect the donkey, select the **FIND** option and then choose the box where you think the donkey is hiding and select **CATCH**.



- If you are correct, you'll see the donkey.
- If the box does not contain the donkey, you'll see "Sorry! That's not correct.", an X will appear in the box and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.

Suppose you have asked the following questions (below, left). You can conclude that the donkey must be in the third column (below, right).

▶	▶	-		
CLUE	FXND	SHOW	B	OPTS

▶	▶		-	
CLUE	FXND	SHOW	B	OPTS

In what direction should you look next?



CATCH THE KITTENS



Objective

Find the two hidden kittens.

Strategy

Catch the Kittens is similar to *Search Out the Seal* (see page 21), but here two kittens are hiding. When you select a box, you will be given the distance from your box to one of the kittens. The distance given is left-right and up-down (not diagonal). You need to evaluate the feedback to determine to which of the kittens each number refers.

You can select as many boxes as you want. When you are ready to locate both kittens, select **FIND** and then **CATCH** to catch the kittens.

- If you are correct, you'll see the kittens.
- If either location (one or both) is incorrect, you'll see "Sorry! That's not correct.", an X will appear in both boxes and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.



TEACHER NOTE

You will never get a distance of zero. If you select a box which contains a kitten, you will be given the distance to the other kitten.

After four clues, suppose you obtain the following results (below, left). What do you know? There are two possible positions for one kitten as determined by the 6, indicated by the circles (below, right). There is one possible position for the other kitten as determined by the 4, 1, and 1. It is indicated by the square (below, right).

6	4			
			1	
		1	4	
CLUE	FIND	SHOW	10	OPTS

6	4			
			1	
		1		
CLUE	FIND	SHOW	4	OPTS

You need more information to catch the kittens. What's your next move?





ROUND UP THE RHINOS

Objective

Find the two hidden rhinos.



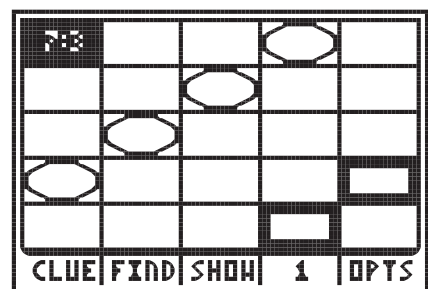
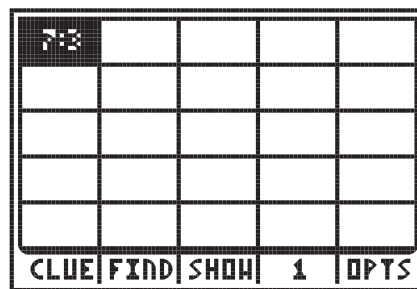
Strategy

Round up the Rhinos is also similar to *Search Out the Seal* (see page 21), but two rhinos are hiding.

You will be given the distance from your box to each of the rhinos. That is, you will get two distances, expressed in random order. The distances are left-right and up-down, not diagonal. You have only one chance to locate the rhinos. When you are ready to round them up, select **FIND** and then **CATCH** to round them up.

- If you are correct, you'll see the rhinos.
- If either location (one or both) is incorrect, you'll see "Sorry! That's not correct.", an X will appear in both boxes and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.

Suppose after your first guess you get the feedback shown in the following screen (below, left). You know that the rhinos could be situated as follows (below, right). Two possible locations for one rhino are indicated by the squares. There are four possible locations for the other rhino, indicated by the circles.





Now suppose after your second guess, you obtain the following results (below, left). You are now able to narrow down the possibilities of each rhino by one location (below, right).

				🦏
CLUE	FIND	SHOW	2	OPTS

🦏			🦏	
		🦏		
	🦏			
			🦏	
CLUE	FIND	SHOW	1	OPTS

What's your next move?



SIGHT THE SNAILS

Objective

Discover the location of the two hidden snails.



Strategy

Sight the Snails is a follow-up to *Discover the Dragon* (see page 25), except that here two animals are hiding.

After selecting a box, you will be told how many snails (0, 1, or 2) are seen in the row and column of your box. Zeros cancel out a row and a column. Feedback of 1 keeps a row and column alive. A 2 is especially important, indicating that you have sighted both snails.

You may select as many boxes as you wish. When you are ready to sight both snails, select **FIND** and then **CATCH**.

- If both locations are correct, you'll see the snails.
- If either location (one or both) is incorrect, you'll see "Sorry! That's not correct.", an X will appear in both boxes and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.





Suppose after several plays you get the following feedback:

0				
1				
	0			
			1	
				2
CLUE	FIND	SHOW	9	OPTS



You may cross out the rows and columns which correspond to each zero as shown (below, left). Then, based on the 1 and 2 in the lower right corner, you can narrow down the location of the snails to the four marked locations (below, right).

0				
1				
	0			
			1	
				2
CLUE	FIND	SHOW	9	OPTS

0				
1				
	0			
			1	
				2
CLUE	FIND	SHOW	9	OPTS

Where would you search next to sight the snails with logical certainty?



COLLECT THE KANGAROOS



Objective

Locate the two kangaroos hiding in the boxes.

Strategy

Collect the Kangaroos is an advanced game of *Detect the Donkey* (see page 27). Here, two kangaroos are hiding.

You can ask questions in the same manner as in the *Detect the Donkey* activity. In this activity, however, the questions refer to either kangaroo, so if only one or both kangaroos fit the condition, the feedback will be **YES**.

When you have enough information to collect the kangaroos, select **FIND** and then **CATCH**.



TEACHER NOTE

Given the nature of this game, there are sometimes two possible solutions to a given problem. Therefore, either solution will be accepted as correct.

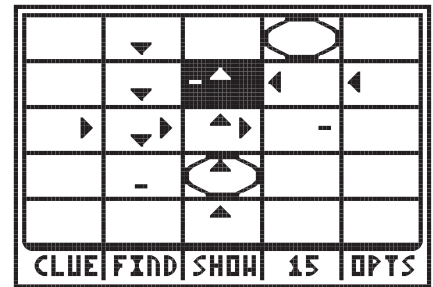
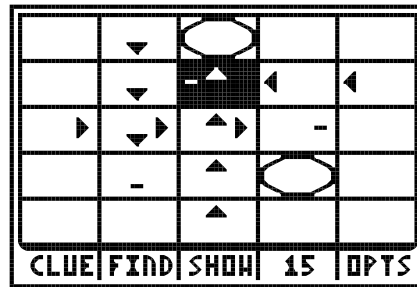
- If both locations are correct, you'll see the kangaroos.
- If either location (one or both) is incorrect, you'll see "Sorry! That's not correct.", an X will appear in both boxes and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.

Suppose you make several moves and obtain the following review:

		▼			
		▼	▲	◀	◀
	▶	▼▶	▲▶	-	
		-	▲		
			▲		
CLUE	FIND	SHOW	15	OPTS	



Either of the two situations shown below are possible correct answers.





CAPTURE THE CATS



Objective

Capture the Cats hidden in the boxes.

Strategy

Capture the Cats is the same as Collect the Kangaroos (see page 35), except that you get a **YES** only when two cats are sighted.

You can ask questions in the same manner as in the Detect the Donkey activity (see page 27). In this activity, however, the questions refer to both cats, so if only one cat fits the condition, the feedback will be **NO**.

When you have enough information to capture the cats, select **FIND** and then **CATCH**. You will have one chance to capture them.

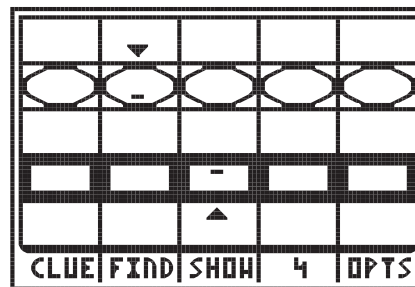


TEACHER NOTE

Given the nature of this game, there are sometimes two possible solutions to a given problem. Therefore, either solution will be accepted as correct.

- If both locations are correct, you'll see the cats.
- If either location (one or both) is incorrect, you'll see "Sorry! That's not correct.", an X will appear in both boxes and the game will end. Select Same Game from the **OPTS** menu to try that game again, or New Game to start a new game.

Based on these clues, one cat is in the second row and one is in the fourth.



How will you narrow down the number of possible columns?



~EVALUATION~

EVALUATION

In active learning situations such as *Safari Search*, the learner knows best where he or she stands. Teachers and parents can be a great help in moving children toward richer experiences and getting them “unstuck” when they ask for help.

To use *Safari Search* effectively:

- First, the teacher or parent should be familiar with the games in *Safari Search*.
- Second, the teacher or parent should be a sensitive and unobtrusive observer of the actual work of children – not just the end result.

Here are some things to observe:

- Does the child engage in *Safari Search* with eagerness? (It’s commonly the case that kids will forego recess and lunch to play learning games such as these.) If not, turn to other issues.
- Do children act coherently in their search? That is, are they just pecking around at random or do they have a plan? Is their plan sensible (even if they cannot explain it to you and you have to infer it from their play)? Do they sometimes seem puzzled and even moderately frustrated? Good! These are signs that real learning is taking place.
- Do their tactics evolve as they get more experienced at a game?
- Do they use information appropriately – judging redundant, useless, and valuable feedback, then acting upon their judgment? Do they show the need for further information when appropriate?
- Do they become more and more adept at constructing complex procedures (though the procedures may only be acted out in their play and not verbalized)? Can they verbalize their procedures?
- Do they generalize or modify a tactic to accommodate new situations and recognize when such generalizing may be fruitless?



- Do they recognize differences between situations despite apparent likenesses? And likenesses despite apparent differences?
- What about their sense of confidence? Their staying power? Their ability to say, “I’ve got that squared away. I’m moving on to higher ground.”

Teachers and parents can help children in several ways:

- One major recommendation is to discourage children’s tendency to rush through the activities. Some children—especially children who have little experience with active approaches to learning (and whose views are that learning involves “stuff to be covered”)—tend to zip through educational activities without becoming truly involved in them. *Safari Search* is not “stuff to be covered,” but rather activities to engage in thoughtfully, carefully, and slowly.
- Once children have immersed themselves in a game, teachers and parents can make small suggestions. For example, “What box might be best to look at first? Why?” (In making such suggestions, please bear in mind that it is the children’s construction, not the teacher’s teaching, that counts.) One specific action teachers and parents can take is to encourage children to keep notes on their data. Scrap paper—or copies of 5 by 5 grids—can be immensely helpful in keeping track of one’s flow of thought while working on *Safari Search* activities.
- Have the children replay the same level and see if they can locate the animal(s) in fewer tries. Ask the question, “Is there a number of tries in which the answers can always be found?”
- A more general—and perhaps more important—recommendation is that teachers or parents guide children to the appropriate level of challenge. The activities occur roughly in order



of complexity, and it may be that children having difficulty are simply way over their heads. The wise move to make is to back up to a point where the child is moderately challenged. One can either choose an earlier activity, so that the child feels comfortable and able, or one can quit the present activity and begin the same activity or a new one at the same level.

- Most important is to leave the learning in the children's hands. Teachers should be mid-wives, not list givers, in the birth of ideas.



SAFARI SEARCH GRID



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~TROUBLESHOOTING~

ERROR RECOVERY INSTRUCTIONS FOR THE TI-73

Communication Error

This error indicates the Flash Installer is unable to communicate with the TI-73. The problem is usually associated with the TI-GRAPH LINK™ cable and its connection to the TI-73 and/or to the computer. Make sure the cable is firmly pushed into the calculator and the computer.

If this does not correct the problem, try a different TI-GRAPH LINK cable and reboot your computer. If you continue to get this error, please contact 1-800-TI-CARES (see Technical Support).

Memory is Full

This download error appears when the TI-73 contains one to four applications that occupy the available 64K of space. In order to make room for another application, you must delete one from the TI-73. Before deleting an application from the TI-73, you can back it up by using the Windows Backup App command in TI-GRAPH LINK for the TI-73. Once saved, you can reload it to the TI-73 later using TI-GRAPH LINK.

Expiration Date Reached

The application has reached its expiration date and can no longer be used. Please contact 1-800-TI-CARES (see Technical Support).

Miscellaneous Error Received

Write down the error code displayed in the dialog box and contact 1-800-TI-CARES (see Technical Support).

Checksum Error

Exit the installer and try it again. If this problem persists, contact 1-800-TI-CARES (see Technical Support).

Low Battery Condition

It's a good idea to make sure that you have sufficient battery power prior to attempting a download. Low battery indication is shown on the initial screen. If you receive this error during an installation, change the batteries before trying again.



MISCELLANEOUS

In order to obtain new or upgraded software for your TI-73, you may need to provide your current software version and/or the serial number of your unit. It is also good to know your version number in case you have difficulties with your TI-73 and need to contact technical support. Knowing the software version may make it easier to diagnose the problem.

Knowing the available number of application spaces in advance helps you better manage your application downloads.

Verify Maintenance Upgrade Version

On the TI-73, enter 2nd, Mem, 1>About. The version number has the format x.yyyy.

Verify Application Version number

On the TI-73, select APPS. Select the appropriate application and press ENTER. The version number of the application appears on the initial screen.

Verify Serial Number

On the TI-73, enter 2nd, Mem, 1>About. The serial number appears on the line beneath the product ID number.

Check Amount of Flash Application Free Space

On the TI-73, select 2nd, MEM, 3:Check APPs. The number to the right of "Spaces Free:" indicates the number of spaces available for applications. Each application requires a minimum of one space. There is a maximum of four free spaces.

TECHNICAL SUPPORT

For questions concerning the installation of *Safari Search* on your TI-73 or for questions concerning the TI-73 calculator, contact Texas Instruments Customer Support.

Customers in the U.S., Canada, Puerto Rico and the Virgin Islands

Send us e-mail at ti-cares@ti.com.

Call us at 1-800-TI-CARES (1-800-842-2737)

Customers outside the U.S., Canada, Puerto Rico and the Virgin Islands

Send us e-mail at ti-cares@ti.com.