

**JANUARY
PRODUCTIONS**

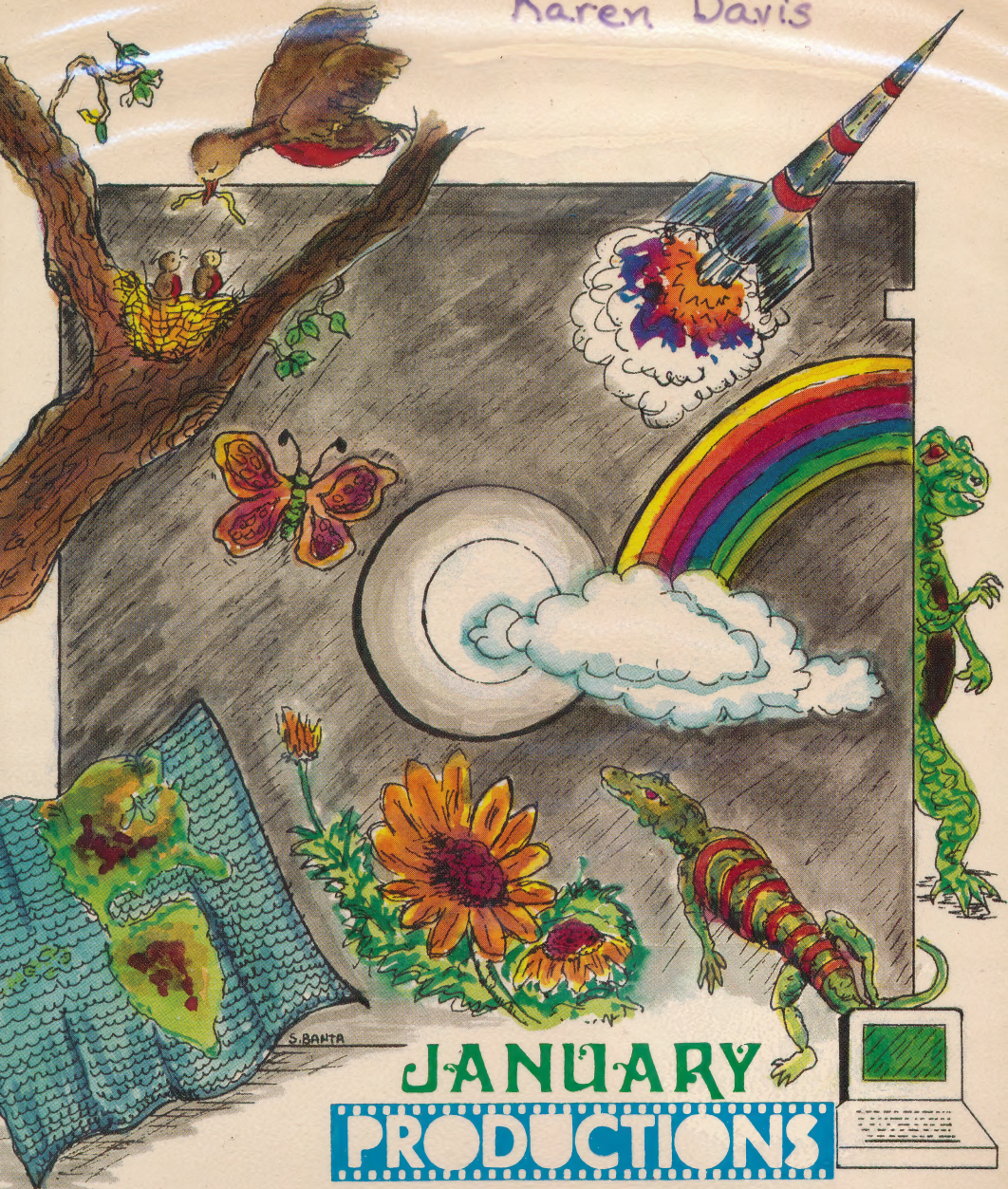


*For Apple II+/IIe/IIc

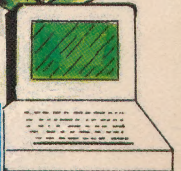
**A First Program About...Series
INSECTS**

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Karen Davis



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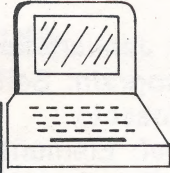
*For Apple II+/IIe/IIc

A First Program About... Series
INSECTS - Part I

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Presents...

INSECTS



© 1986 January Productions, Inc.

Publisher: January Productions, Inc.

Type of Program: Self-Instructional

Subject: Insects

Grade Level: Elementary

Computer Requirements:

Apple II+/IIe/IIc or

Apple II with Applesoft in ROM
48k

One Disk Drive

DOS 3.3

Color Monitor Recommended

To Load: This program is self-loading.

1. Be sure caps **LOCK** is in down position.
2. Place diskette in Drive #1.
3. Turn on the machine.

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TO THE TEACHER

This is a self-instructional program designed to teach elementary grade students basic concepts about insects. This full-color program presents the facts in an easy-to-understand manner. Students are intermittently presented with multiple choice questions; however, these questions are meant to reinforce knowledge rather than to test it. If the student answers correctly, the program proceeds to the next question or instructional frame. If the student answers incorrectly, a review is given and he/she tries again. At the end of the program a brief self-checking quiz is given. Again, this quiz is intended to ensure that the student acquires an understanding of the concepts rather than to test that understanding. If you wish to check your students' understanding, a post-test has been included in this guide for that purpose.

POST-TEST

NAME _____

Circle A, B, or C (1-5)

1. Insects have _____ legs.

- (A) Four
- (B) Six
- (C) Eight

2. An insect's body is divided into _____ main parts.

- (A) Two
- (B) Three
- (C) Four

3. An insect's skeleton is _____.

- (A) On the outside
- (B) On the inside
- (C) Soft

4. The 4 stages of complete metamorphosis are _____.

- (A) Egg ► Larva ► Pupa ► Adult
- (B) Egg ► Nymph ► Pupa ► Adult
- (C) Egg ► Pupa ► Larva ► Adult

5. The 3 stages of incomplete metamorphosis are _____.

- (A) Egg ► Larva ► Adult
- (B) Egg ► Nymph ► Adult
- (C) Egg ► Pupa ► Adult

Complete the blanks (6-10)

6. An insect uses its _____ to smell and taste.
7. An insect has two kinds of eyes: _____ and _____.
8. An insect's legs and wings (if it has them) are attached to the _____.
9. An insect's stomach is located in its _____.
10. An insect breathes through its _____, or openings in the thorax or abdomen.

True or False (11-15)

11. _____ Most insects are harmful.
12. _____ There are only a few kinds of insects.
13. _____ Insects live only in warm climates.
14. _____ Some insects help plants by spreading pollen.
15. _____ The pupa is a resting stage.

PROJECTS AND ACTIVITIES

The following activities have been coded according to Bloom's Taxonomy of Educational Objectives for your convenience: K = Knowledge; C = Comprehension; Ap = Application; An = Analysis; S = Synthesis; and E = Evaluation. Some of the activities will require outside research.

BLOOM'S TAXONOMY

K = KNOWLEDGE—The recall of specifics and universals; bringing to mind the appropriate material.

C = COMPREHENSION—Understanding what is being communicated and making use of what is being communicated without necessarily relating it to other material or seeing its fullest implications.

AP = APPLICATION—The use of abstractions in particular and concrete situations. The abstractions may be in the form of general or technical ideas, rules or methods which must be remembered and applied.

AN = ANALYSIS—Breaking down a communication into its constituent elements or parts so that the relative hierarchy of ideas expressed are made explicit.

S = SYNTHESIS—Putting together elements and parts to form a whole; arranging and combining the elements in a pattern or structure not clearly there before.

E = EVALUATION—Making judgments about the extent to which material and methods satisfy criteria, either given to the student or determined by the student.

1. Draw an insect and label its body sections and main parts. (K,C,Ap)

2. Take a short walk in your neighborhood. List all the insects you see. (K,C)

3. Compare and contrast an ant, a butterfly and a grasshopper. Keep in mind such things as body parts, color, size and shape. (An)

4. Make up a game in which players must identify which of several animals are insects. (C,Ap,S)

5. Find out more about an insect's eyes. Report on their advantages and disadvantages. (C,Ap)

6. Many insects are extremely strong for their size. Create a humorous picture or cartoon about a strong ant. (S)

7. Draw a picture that illustrates how an insect's color and/or shape may protect it. (C,Ap)

8. Make a list of insects' actions or physical characteristics which serve as protection. (K)

9. Write job descriptions for each member of an ant community. (C,Ap)

10. Make a poster which compares simple growth, incomplete metamorphosis and complete metamorphosis. (C,Ap,An)

11. Insects play an important role in the balance of nature. How do you think life would change if all the insects in the world were to suddenly disappear. (C,An,E)

12. Only about one percent of the world's insects are harmful. Some, however, do a great deal of damage. Make a chart of harmful insects that shows how they are harmful. (C,Ap)

13. An insect can be both harmful and helpful. Explain. (C)

14. Entomologists, or scientists who study insects, group insects according to their wing type and other characteristics. Each main group is called an order. There are about 25 orders. Make an illustrated flip-book of at least 15 orders of insects. Include the most important characteristics of each. (C,Ap)

15. Make up 5 "Who Am I" riddles about insects. (C,Ap)

16. Insects have adapted to many environments; therefore, their structures show a great variation. Because their diets vary, so do their mouth parts. They are adapted for chewing, sucking, piercing, and lapping. Draw a chart that shows the mouths of a house fly, butterfly, mosquito and grasshopper. Tell for which action or actions each is adapted.
(C,Ap)

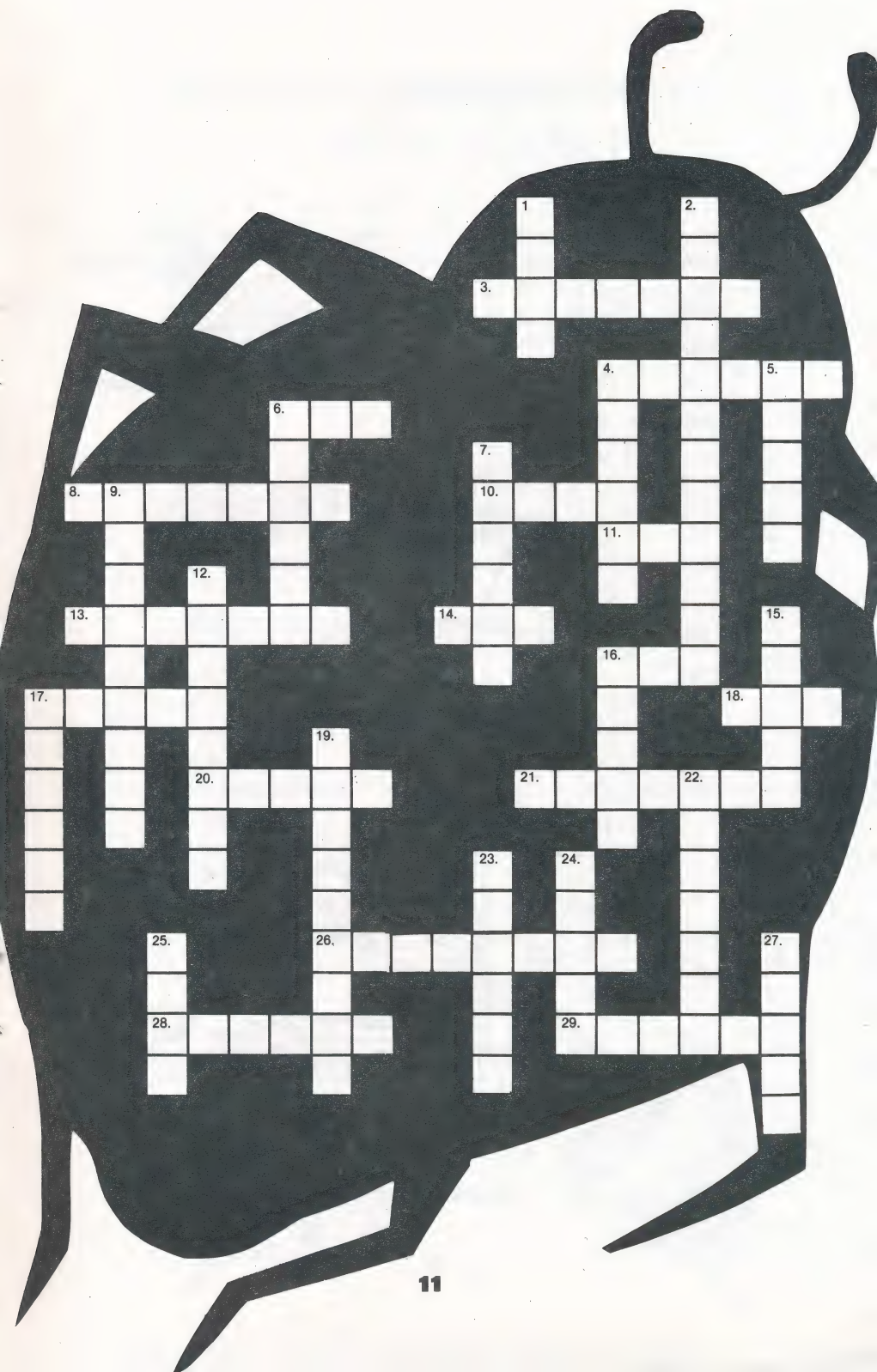
CROSSWORD PUZZLE

Across

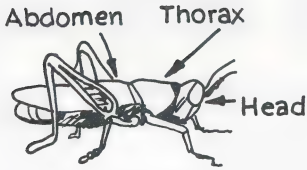
1. The boll weevil ruins this crop.
3. This insect eats wood.
4. One kind of an insect's eyes.
6. Term sometimes used to mean "insect."
8. Part of insect's body with stomach.
10. One of an insect's 3 main parts.
11. What all insects begin as.
13. What bee uses to protect itself.
14. Same as 11 across.
16. A very social insect.
17. Number of main parts of an insect.
18. Same as 6 across.
20. Second stage of incomplete metamorphosis.
21. Jiminy, for example.
26. This kind of eye is made up of many small ones.
28. Bees, wasps and butterflies help spread this.
29. This 8-legged creature is often mistaken for an insect.

Down

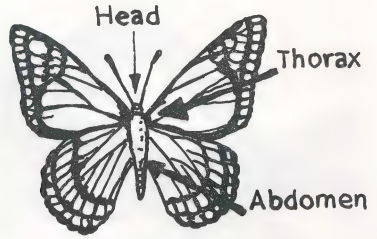
2. A scientist who studies insects.
4. Same as 29 across.
5. The second stage of complete metamorphosis.
6. A ladybird is one.
7. What "metamorphosis" means.
9. A caterpillar is the larva stage.
12. The insect uses these to smell and feel.
15. A butterfly represents the _____ stage.
16. This tiny insect causes much damage by sucking sap from plants.
17. Where an insect's legs are attached.
19. Tiny holes through which an insect breathes.
22. Gets its name from the sound it makes.
23. Same as 17 down.
24. If an insect has these, they're attached to the rings of its thorax.
25. Resting stage of complete metamorphosis.
27. Same as 5 down.



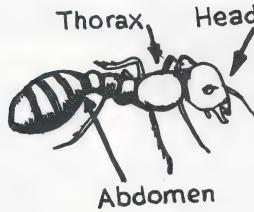
THE THREE MAIN BODY DIVISIONS



Grasshopper

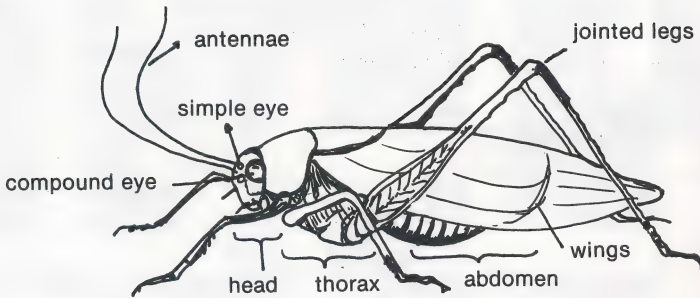


Butterfly



Ant

PARTS OF AN INSECT

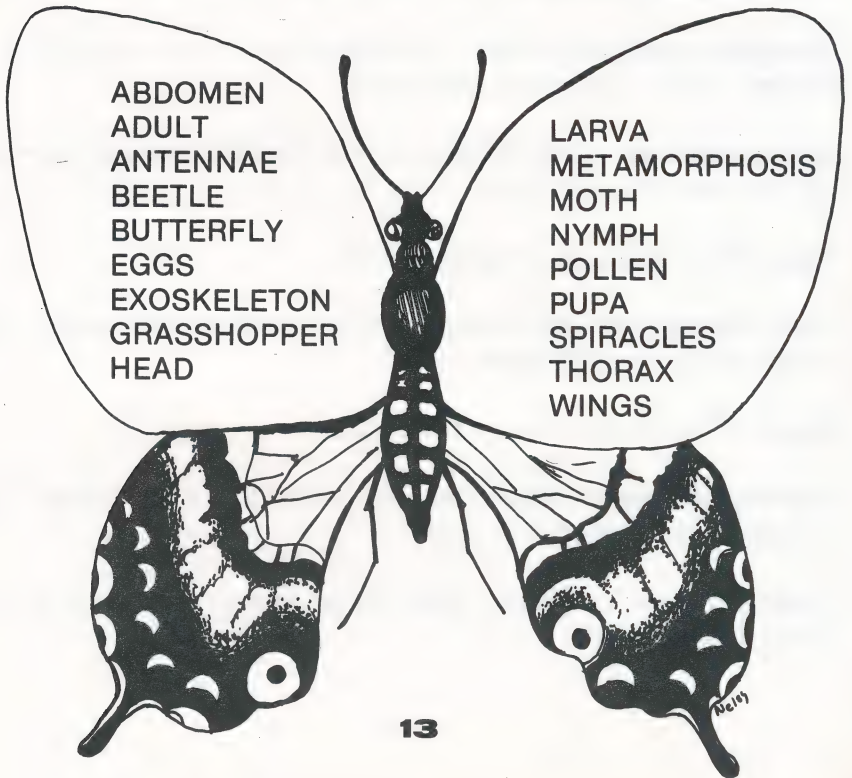


Grasshopper

INSECT WORD SEARCH

GHEALWINGS SPARACLESNNYS
RHMETAMORRPPHOSIESELYFP
AAEBADONMENTENNAELARMVI
SEGARAABDOMENSNSHOPPPER
SBXTDHORAPXENNDXOSKEHLA
HUEOTOANOMATEHLARGFVAPC
OTABSDCLEDEGTFHIRLGE LNOL
PTJLUKCLKMONDBBNOPEQAYLE
PEVLWEIXBAYCEEEHZTURSAS
ERTZNAKNLYLFRETTUBEVFP
RMBUJTTERFYIXCETHTRAOU
AOMEXOSKELETONGOLUVBUPH
NTPAPANRPELTEEBPSEFWDAJ
METAMORPHOSISNRQMHTOMLK

Find and circle these words about insects.



GLOSSARY

abdomen—Part of insect's body that contains the stomach, a stinger if it has one and the female's egg-laying parts.

adult—Final stage of insect's life.

antennae—Attached to insect's head; used to smell and feel and sometimes taste and hear.

bug—An insect of the order Hemiptera; informal term for any insect.

chrysalis—The third stage in the development of an insect, especially a moth or butterfly, enclosed in a firm case or cocoon; pupa.

complete metamorphosis—Development of an insect in 4 stages: egg, larva, pupa and adult.

compound eye—One of 2 kinds of an insect's eyes; it is made up of many smaller eyes.

egg—First stage in an insect's life.

exoskeleton—An external protective covering of insects and many other invertebrates.

head—One of the 3 main body parts of an insect.

incomplete metamorphosis—Development of an insect in 3 stages: egg, nymph and adult.

invertebrate—An animal, such as an insect, which does not have a spinal cord.

larva—The second stage of complete metamorphosis.

molt—To shed its skin.

nymph—The middle stage of incomplete metamorphosis.

pupa—The third stage of complete metamorphosis; the resting stage.

spiracles—Tiny openings in abdomen and thorax through which an insect breathes.

thorax—The middle part of an insect's body where legs and wings are attached.

Answers to Post-Test:

- | | | |
|------|----------------------|-------|
| 1. B | 6. antennae | 11. F |
| 2. B | 7. simple & compound | 12. F |
| 3. A | 8. thorax | 13. F |
| 4. A | 9. abdomen | 14. T |
| 5. B | 10. spiracles | 15. T |

Answers to Crossword:

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          C       E
          H       N
          T E R M I T E
          W
                S I M P L E
                P O A
          B U G      I L R
          E          C H E A D O V
          A B D O M E N      A E G G A
          U T          A N R I
          T A L          E G G S A
          S T I N G E R      E A N T D
          E T          E P B U G
          T H R E E          H B L
          H F N S          C R I C K E T
          O R L N Y M P H      D A
          A Y A I          T W T
          X E R          T H I Y
          P C O M P O U N D D L
          U L R G I A
          P O L L E N A S P I D E R V
          A S X          A
    
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Answers to Word Search:

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G H E A L W I N G S S P A R A C L E S N N Y S
R H M E T A M O R R P P H O S E S E L Y F P
A A E B A D O N M E N T E N N A E L A R I M V I
S E G A R A A B D O M E N S N S H O P P P E R
S B X T D H O R A P X E N N D X O S K E H L A
H U E O T C A N O M A T E H L A R G F V A P C
O T A B S D O L D E G T F H I R L G E L N O L E
P T J L U R L K M O N D B B N O P E Q A Y L E
P E V L W E I X B A Y C E F E E H Z T U R S A S
E R T Z N A K N L Y L F R E T T U B E V F P G
B M B U J T T E R F Y I X C E T H T R A O U I
A O M E X O S K E L E T O N G O L U V B U P H
N T P A P A N R P E L T E E B P S E F W D A J
M E T A M O R P H O S I S N R Q M H T O M L K
    
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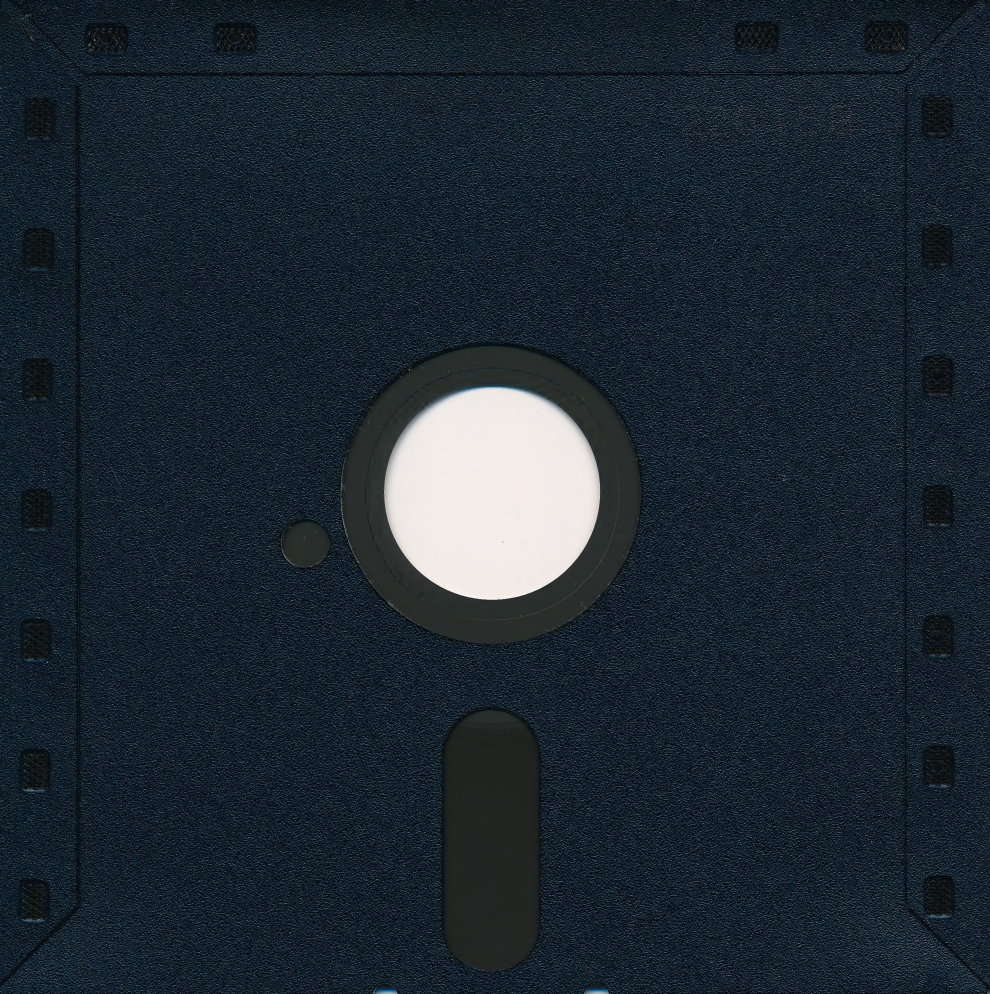


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A First Program About...Series
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