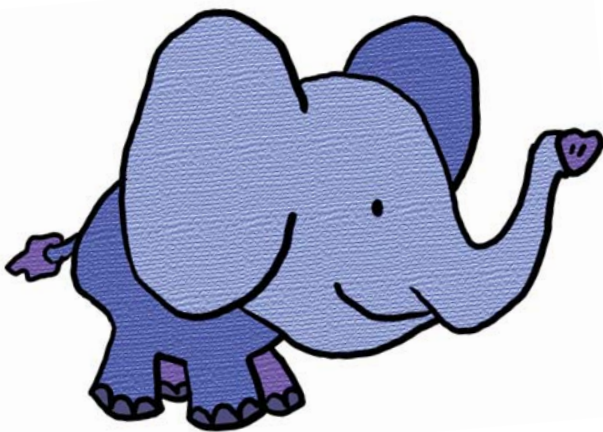
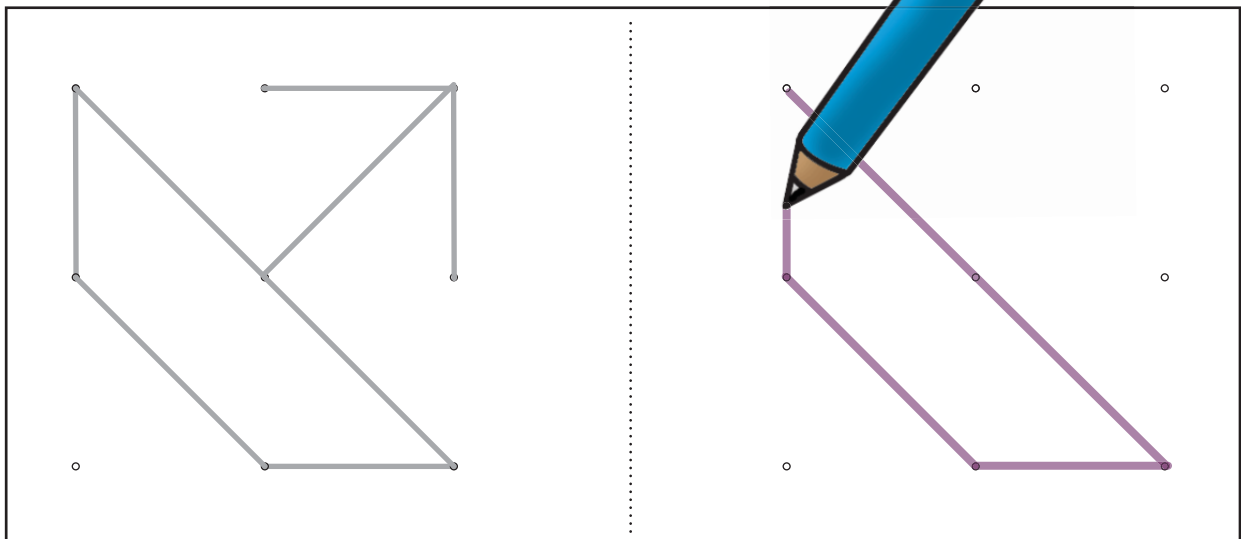


dr. Kristijan Musek Lešnik
dr. Petra Lešnik Musek

PROSTORSKA UREJENOST: POVEZOVANJE PIK - RAZLIČNE OBLIKE



POVEŽI PIKE NA DESNI
STRANI NA ENAK NAČIN
KOT SO POVEZANE V
LEVI MREŽI PIK



PROSTORSKA UREJENOST: POVEZOVANJE PIK - RAZLIČNE OBLIKE

dr. Kristijan Musek Lešnik

dr. Petra Lešnik Musek

Naslov delovnega zvezka: PROSTORSKA UREJENOST: POVEZOVANJE PIK – RAZLIČNE OBLIKE

Zbirka: Program za razvijanje grafomotoričnih, finomotoričnih in pisalnih spretnosti: Prostorska urejenost

Avtorja in nosilca avtorskih pravic: dr. Kristijan Musek Lešnik, dr. Petra Lešnik Musek

Prva izdaja

Leto izida: 2013

Leto izdelave: 2014

Oblika natisa: delovni zvezek v elektronski obliki

Format delovnega zvezka: A4

Število strani: 75

Založba:

IPSOS dr. Kristijan Musek Lešnik s.p.

Požarnice 26d, 1351 Brezovica pri Ljubljani

www.ipsos.si

www.abced.org

CIP - Kataložni zapis o publikaciji

Narodna in univerzitetna knjižnica, Ljubljana

159.946.4-053.5(076.034.2)

MUSEK Lešnik, Kristijan

Prostorska urejenost. 3, Povezovanje pik - različne oblike [Elektronski vir] / Kristijan Musek Lešnik, Petra Lešnik Musek. - 1. izd. - El. knjiga. - Brezovica pri Ljubljani : IPSOS, 2013. - (Zbirka Program za razvijanje grafomotoričnih, finomotoričnih in pisalnih spretnosti. Prostorska urejenost)

ISBN 978-961-6671-64-4 (pdf)

1. Lešnik Musek, Petra

267222784

V zadnjih letih vse več raziskav opozarja, kako pomembno vlogo v otrokovem razvoju igra razvoj drobno gibalnih spretnosti.

Drobno gibalne in vidno prostorske spretnosti so pri predšolskih in šolskih otrocih povezane s splošnimi in specifičnimi kognitivnimi zmožnostmi kot so kratkoročni spomin, vizualno procesiranje, dolgoročni spomin in priklic, fluidno mišljenje in kristalizirana inteligentnost, pa tudi s poznejšimi dosežki ter ucnim uspehom, ali neuspehom.

Nekatere raziskave kažejo, da mnogi učenci prav zaradi slabše razvitih drobno gibalnih spretnosti dosegajo slabše rezultate, kot bi jih pričakovali glede na njihove intelektualne zmožnosti.

Druge raziskave opozarjajo, da ustrezno strukturirani programi v predšolski in v šolski dobi vodijo k izboljšanju vidno prostorskih in drobno gibalnih spretnosti ter posledično k boljšim dosežkom.

Zato je še kako pomembno, da pri predšolskih in šolskih otrocih sistematično spodbujamo in krepimo razvoj drobno gibalnih spretnosti in grafomotorike.

KAZALO

POMEN URJENJA GRAFOMOTORIKE	5
GRAFOMOTORIČNE VAJE ZA OTROKE	7
POVEZOVANJE PIK V LIKE	8
DELOVNI LISTI	9
VIRI	74

POMEN URJENJA DROBNO GIBALNIH SPRETNOSTI IN GRAFOMOTORIKE

Drobno gibalne in vidno prostorske spretnosti so pri predšolskih in šolskih otrocih povezane z različnimi kognitivnimi zmožnostmi (kratkoročni spomin, vizualno procesiranje, dolgoročni spomin in priklic, fluidno mišljenje, kristalizirana inteligentnost, ipd.), pa tudi z njihovimi poznejšimi dosežki ter ucnim uspehom, ali neuspehom.

“Eno je gotovo – pisani jezik otrok se razvija tako, da se pomika od risanja stvari k risanju besed. Vsa skrivnost poučevanja pisanega jezika je pripraviti in organizirati ta naravni prehod na ustrezen način.

Lev S. Vygotsky, esej “*The Prehistory of Writing*”, 1930 v knjigi *The Mind in Society*, 1978, po Sheridan, 2002

»Čeprav se zdi ponavljajoče mehanično urjenje, ki spremlja vaje ročnega pisanja, zastarelo, tovrstna telesna dejavnost pomaga učencem uspeti. Te dejavnosti spodbujajo aktivnost možgan, vodijo k bolj tekočemu jeziku in pripomorejo v razvoju pomembnega znanja.«

Frank Wilson, “*The Hand: How Its Use Shapes the Brain, Language and Human Culture*”, 1999)

Kaj so drobnogibalne spretnosti?

Drobno gibalne (*finomotorične*) spretnosti so priučene spretnosti, ki vključujejo gibe manjših delov telesa (rok, zapestij, prstov, pa tudi drugih manjših sklopov mišic) v sodelovanju z vidom. Razvijajo se od zgodnjega otroštva naprej in otrokom omogočajo vse bolj natančna dejanja (*na primer rokovanje z jedilnim priborom, natančen pincetni prijem, popravilo drobnih delov ure, ipd.*). Med ključne drobnogibalne spretnosti sodijo grafomotorične spretnosti.

Zakaj so drobnogibalne spretnosti tako pomembne?

V zadnjih letih vse več raziskav opozarja, kako pomembno vlogo v otrokovem razvoju igra razvoj drobnogibalnih spretnosti. Drobno gibalne in vidno prostorske spretnosti so pri predšolskih in šolskih otrocih povezane s splošnimi in specifičnimi kognitivnimi zmožnostmi kot so kratkoročni spomin, vizualno procesiranje, dolgoročni spomin in priklic, fluidno mišljenje in kristalizirana inteligentnost (*Davis, Pitchford in Limback, 2011*), pa tudi s poznejšimi dosežki ter ucnim uspehom, ali neuspehom pri matematiki in pri drugih predmetih (*Beery in Beery, 2004; Cameron in sod., 2012; Carlson, Rowe in Curby, 2013; Curby in Carlson, 2014; Cirelli Coppede, in sod. 2012; Dineheart in Manfra, 2013; Grissmer in sod., 2010; Gunderson in sod., 2012; Lahav, Apter in Ratzon, 2013; Luo in sod., 2007; Morales in sod., 2011; Murrach, Chen in Cameron, 2013; Pagani in sod., 2010, 2011, 2012; Pereira, Araujo in Bracciali, 2011, Pontart in sod., 2013; Roebbers in sod., 2013; Sortor in Kulp, 2003; Stoeger, Suggate in Ziegler, 2013; Stoeger in Ziegler, 2010*). Mnogi učenci prav zaradi slabše razvitih drobnogibalnih spretnosti dosegajo slabše rezultate, kot bi jih pričakovali glede na njihove intelektualne zmožnosti (*Stoeger, Ziegler in Martzog, 2008; Stoeger, Suggate in Ziegler, 2013; Stoeger in Ziegler, 2013*).

Pomembno je vedeti, da lahko razvoj drobnogibalnih spretnosti pri predšolskih in šolskih otrocih sistematično spodbujamo in krepimo. Raziskave potrjujejo, da ustrezno strukturirani programi v predšolski in v šolski dobi vodijo k izboljšanju vidno prostorskih in drobnogibalnih spretnosti ter posledično k boljšim dosežkom (*Eisenstat, 2006; Fahimi in sod., 2013; Brown, 2010; Grissmer in sod., 2013, po Sparks, 2013; Hamm in Harper, 2014; St. John, 2013; Stewart, Rule in Giordano, 2007*).

Kaj so grafomotorične spretnosti?

Grafomotorične spretnosti so kombinacija spoznavnih (*kognitivnih*), zaznavnih (*perceptivnih*) in drobnogibalnih (*finomotoričnih*) spretnosti, ki otroku omogočajo, da na papir, ali na drugo podlago prenese podobe, ki si jih zamisli. Grafomotorične spretnosti zahtevajo dobro sodelovanje med vidno zaznavnimi in mišičnimi sistemi. Razvijajo se vzporedno z zorenjem različnih spoznavnih, zaznavnih in gibalnih spretnosti. Njihov postopni razvoj se dogaja ob spontanih izkušnjah, naj pa lahko vplivamo tudi s pomočjo usmerjene vadbe.

Razvijajoče se grafomotorične spretnosti otrokom omogočajo napredovanje od prvih poskusov beleženja pomembnih idej ali podob iz okolja proti zapletenejšemu izražanju in trajnemu beleženju simbolov in misli. Ena od najbolj kompleksnih spoznavno-zaznavno-gibalnih spretnosti je pisanje. Zato ni naključje, da so raziskovalci v večini študij, ki so v zadnjih letih opozorile na pomen drobnogibalnih spretnosti za kognitivni razvoj in učne dosežke, raven drobnogibalnih spretnosti pri otrocih med drugim ugotavljali prav s pomočjo grafomotoričnih nalog (prim.: *Cameron in sod., 2012; Davis, Pitchford in Limback, 2011; Dineheart in Manfra, 2013; Grissmer in sod., 2010; Luo in sod., 2007; Piek, Hands in Licari, 2012; Pontart in sod., 2013; Stoeger, Suggate in Ziegler, 2013*).

Zakaj grafomotorične vaje, če pisanje z roko izumira?

Razvoj in širjenje informacijske tehnologije ob koncu 20. in na začetku 21. stoletja globoko vpliva na izobraževalne procese v šolah. Ena od nenačrtovanih posledic tega razvoja je postopno spontano opuščanje "zastarelih" praks. Tudi popuščanje pri učenju in utrjevanju pisanja in s pisanjem povezanih spretnosti, je velikokrat pospremljeno z ugotovitvijo, da bodo današnji otroci v prihodnosti veliko več tipkali na tipkovnice ali pritiskali znake na zaslonih različnih komunikacijskih naprav, kot pa pisali.

Danes večina pisanih besedil ne nastaja več s pisanjem na papir, pač pa s pomočjo digitalnih pripomočkov, od računalnikov do pametnih telefonov in tabličnih računalnikov. Učenje pisanja, ki je bilo več stoletij en od temeljev izobraževanja otrok, se lahko zdi v času razcveta komunikacijske tehnologije, ko otroci pišejo s tipkovnicami, ali preko tabličnih računalnikov, zastarelo in nepotrebno. Vse več otrok zapušča osnovno šolo, ne da bi resnično osvojili in obvladali pisanje s pisanimi črkami. Vedno več srednješolcev in študentov pisne izdelke pripravlja z računalnikom, če že morajo pisati, pa pišejo z velikimi tiskanimi črkami. (Raziskava več kot 1.5 milijona esejev, ki so jih v letu 2005 pisali 16 in 17 letni ameriški dijaki, je na primer pokazala, da jih je le 15 odstotkov pisalo s pisanimi črkami; vir *CollegeBoard*, 2006.)

Popuščanje pri učenju in utrjevanju predpisalnih spretnosti in pisanja se zdi logična posledica ugotovitve, da današnjih otrok nima smisla obremenjevati z izumirajočo spretnostjo, ki jim v življenju ne bo pomembno koristila. Ta ugotovitev sloni na predpostavki, da se da pisanje z roko preprosto nadomestiti z drugimi oblikami pisnega izražanja, od tipkanja do uporabe pametnih tabličnih pripomočkov. Vendar ima ta predpostavka resno in globoko težavo: **JE NAPAČNA in NEVARNA!**



Zaradi takšnih poenostavljenih in napačnih predpostavk se v mnogih šolah in šolskih sistemih vse manj časa in pozornosti namenja urjenju in utrjevanju drobno motoričnih, grafomotoričnih, predpisalnih in pisalnih spretnosti. Otroci, katerih starši so v šolah popisali kilometre vrstic v zvezke, obkrožajo in podčrtujejo besedila v delovnih zvezkih, tipkajo besedila prek tipkovnic in pomikajo prste ter izbirajo znake na zaslonih tabličnih računalnikov in pametnih telefonov. Dobra plat tega je, da se učijo uporabljati komunikacijska orodja in tehnologijo. Slaba pa, da veliko manj urijo grafomotoriko in pisanje z roko.

Uveljavljeni nevrolog F. R. Wilson poudarja, da je prav edinstvena struktura človeške roke in njena evolucija v sodelovanju z možgani omogočila človeški vrsti postati najbolj inteligentno bitje na Zemlji. V knjigi *"The Hand: How its Use Shapes the Brain, Language, And Human Culture"* (2001) opozarja, da je roka prav tako pomembna kot so pomembni naši možgani in da je neločljivo povezana z učenjem. Zato poudarja, da vsako izobraževanje, ki se osredotoča zgolj na um, vodi v osiromašenje in da bo v šolskih okoljih, kjer bo upadal poudarek na dejavnostih, ki vključujejo gibanje rok in telesa, prejkoslej tudi drugo znanje slabše obdelano in nezadostno naučeno. Spoznanje, da je roka organ, ki izdatno sodeluje pri spodbujanju umske dejavnosti in prevajanju misli v jezik, potrjujejo tudi sodobne raziskave, ki vključujejo slikanje možgan s funkcionalno magnetno resonanco (*Berninger, 2012*).



Roka je prav tako pomembna kot so pomembni naši možgani.

GRAFOMOTORIČNE VAJE ZA OTROKE

Kaj so grafomotorične vaje?

Grafomotorične vaje so različne dejavnosti tipa pisalo-papir, ki so namenjene spodbujanju drobnogibalnih spretnosti roke, izboljšanju koordinacije oko – roka, spodbujanju pozornosti in natančnosti. Tovrstne vaje ne prispevajo le k utrjevanju spretnosti, ki jih potrebujemo za pisanje, pač pa spodbujajo razvoj drobnogibalnih spretnosti, ki jih potrebujemo tudi pri številnih drugih dejavnostih, kjer pridejo do izraza drobni gibi in občutljiva koordinacija med očmi in rokami.

Raziskave (*Golos in sod., 2011; Kambas in sod., 2010; Keller, 2001; Ratzon, Efraim in Bart, 2007; Vinter in Chartrel, 2010*) opozarjajo, da dejavnosti, ki spodbujajo senzorno integracijo in prispevajo k spodbujanju in vizualno-motoričnega nadzora, vodijo k utrjevanju grafomotoričnih spretnosti in pisanja ter pozitivno vplivajo na učenje pisanja. To še posebno velja za vizualno motorične vaje oziroma urjenje (*Kambas in sod., 2010; Sudsawad in sod., 2002; Vinter in Chartrel, 2010*). Vaje v okviru programa ABC.ED so namenjene takšnemu vizualno-motoričnemu urjenju in utrjevanju predpisalnih in pisalnih spretnosti učencev. Načrtovane so tako, da spodbujajo različne vidike razvoja grafomotorike in različne spretnosti, ki postopoma prispevajo k razvoju drobno gibalnih spretnosti, grafomotorike in pisanja.

Dejavnosti, ki spodbujajo senzorno integracijo in prispevajo k spodbujanju in vizualno-motoričnega nadzora, vodijo k utrjevanju grafomotoričnih spretnosti in pisanja ter dolgoročno pozitivno vplivajo na učenje pisanja.



Grafomotorične vaje in razvoj vizualno motorične integracije

Vizualno motorična integracija je koordinacija vidnih zaznav z gibi telesa, še posebno z gibi roke in prstov (Beery in Beery, 2004). Najbolj intenzivno se razvija v otroških letih, ko se morajo otroci naučiti koordinirati gibe telesa z okoljem in s predmeti okrog njih. Čeprav je vizualno motorična integracija ena od temeljnih zmožnosti za uspešno ukvarjanje tako s telesnimi aktivnostmi in športom kot tudi za umetniško izražanje (od slikanja do kiparjenja in drugih vrst oblikovanja različnih snovi), jo velikokrat najbolj povezujemo prav s pisanjem. Vendar se njen domet tu nikakor ne zaključuje: tako kot je pomembna za pisanje z roko, je vizualno motorična integracija nujen pogoj za široko paleto raznovrstnih človeških opravil, tudi za uspešno rokovanje s sodobnimi komunikacijskimi orodji, od računalnika do tabličnih računalnikov in pametnih telefonov. Sodobne raziskave opozarjajo tudi, da se učinkovita vizualno motorična integracija povezuje še z mnogimi drugimi pomembnimi dejavniki uspešnega življenja; pri otrocih se na primer povezuje z večjo uspešnostjo pri branju, računanju, matematiki in drugih dejavnostih (*Beery in Beery, 2004; Lahav, Apter in Ratzon, 2013; Pereira, Araujo in Bracciali, 2011, Sortor in Kulp, 2003*).

Grafomotorične vaje niso namenjene le otrokom s težavami pri pisanju

V preteklosti so bili programi grafomotoričnih vaj namenjeni predvsem otrokom, ki so imeli težave pri učenju pisanja. Vaje, kakršne so na primer zajete v programu Write from the start (*Teodorescu in Addy, 1996*), so bile namenjene podpori otrokom s težavami na področju grafomotorike. Podobne grafomotorične vaje je v slovenskem prostoru pred 40 leti pripravil Borut Šali.

Vaje v okviru programa ABC.ED so namenjene vsem otrokom. Načrtovane so tako, da spodbujajo različne vidike razvoja senzomotorike, grafomotorike in drugih spretnosti, ki prispevajo k razvoju predpisalnih in predpisalnih spretnosti ter k razvoju pisanja in drugih drobno gibalnih spretnosti. V vsakem delovnem zvezku je večje število različnih vaj, ki jih lahko izbiramo glede na trenutne spretnosti in izkušnje različnih otrok za optimalen učinek.

Vaje v okviru programa ABC.ED spodbujajo različne vidike razvoja senzomotorike in grafomotorike in različne spretnosti, ki prispevajo k razvoju pisanja in drugih drobno-gibalnih spretnosti.



POVEZOVANJE PIK V LIKE

O povezovanju pik v like

Povezovanje pik v like je pomembna aktivnost pri spodbujanju koordinacije oko - roka, pri kateri otrok prerisuje različno zapletene vzorce v mreži pik. Ko med risanjem otrok s pogledom sproti sledi napredujoči črti in njeno smer primerja s ciljno piko, se krepi nadzor nad drobnimi gibi roke s katerimi nadzira premikanje pisala od pike do pike in se krepi se vizualno motorična integracija.

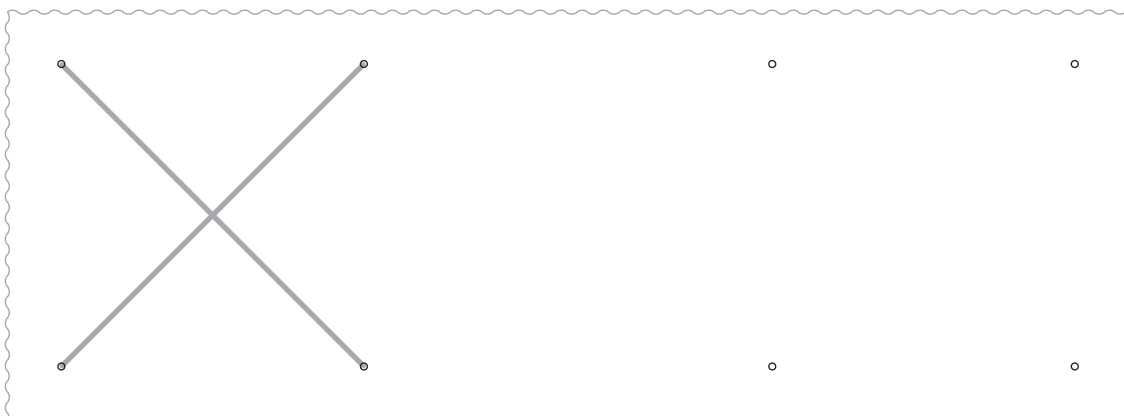
Povezovanje pik v mreži je pomembno za utrjevanje prostorskih pojmov (dolžina in smer), ki igrajo pomembno vlogo pri razvoju pisanja, risanja in drugih grafomotoričnih ter drobno gibalnih spretnosti. Naloge, pri katerih otrok v mreži pik preriše predloženi vzorec, krepijo vidno razlikovanje (vizualno diskriminacijo), spreminjajoča se smer risanja črt pa prispeva k razvoju zaznavanja drobnih gibov in kinestetičnega zavedanja.

Med risanjem naj otrok ne spreminja položaja lista in naj ga ne obrača. Če je le mogoče, naj poskusi risati posamezen vzorec v eni potezi, brez ustavljanja ali prestavljanja pisala.

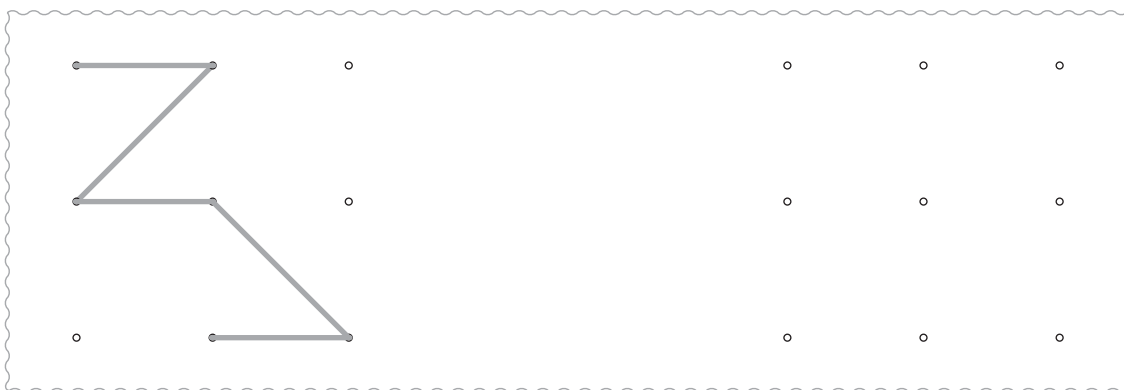
Delovni listi in dejavnosti v tem delovnem zvezku

Delovni listi v tem delovnem zvezku od otroka zahtevajo, da poveže niz pik znotraj zarisane mreže v predloženi vzorec. Naloge si sledijo od lažjih proti težavnejšim.

Primer: srednje zahteven vzorec



Primer: zahteven vzorec



DELOVNI LISTI

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate 4x4 dot grids, each enclosed in a dashed border. Each grid has a 2x2 square of dots in the top-left corner. The first grid shows a vertical line connecting the top-left and bottom-left dots, and a horizontal line connecting the bottom-left and bottom-right dots. The second grid shows a horizontal line connecting the top-left and top-right dots, and a vertical line connecting the top-right and bottom-right dots. The third grid shows a vertical line connecting the top-right and bottom-right dots, and a horizontal line connecting the bottom-left and bottom-right dots.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot-matrix puzzles, each enclosed in a dashed rectangular border. Each puzzle consists of a 3x3 grid of dots. In the first puzzle, the top-left dot is connected to the top-right dot by a vertical line, and the top-left dot is also connected to the bottom-right dot by a diagonal line. In the second puzzle, the top-left dot is connected to the bottom-right dot by a diagonal line, and the bottom-left dot is connected to the bottom-right dot by a horizontal line. In the third puzzle, the top-left dot is connected to the bottom-right dot by a diagonal line, and the top-right dot is connected to the bottom-left dot by a diagonal line, forming an 'X' shape.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three rows of dot-matching exercises. Each row is enclosed in a dashed rectangular border. In each row, the left side shows a shape formed by connecting four dots, and the right side shows a 2x2 grid of four dots for matching.

- Row 1:** The left shape is a square. The right side has four dots arranged in a 2x2 grid.
- Row 2:** The left shape is a C-shaped figure (a square with the top side missing). The right side has four dots arranged in a 2x2 grid.
- Row 3:** The left shape is a right-angled triangle. The right side has four dots arranged in a 2x2 grid.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three rows of dot-matching exercises, each enclosed in a dashed rectangular border. Each row consists of a connected shape on the left and four dots on the right, arranged in a 2x2 grid. The shapes and their corresponding dot connections are as follows:

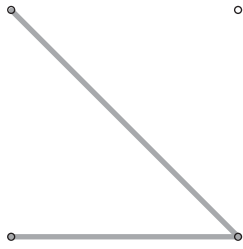
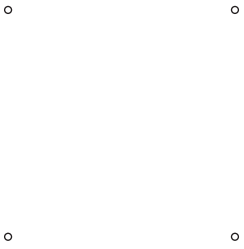
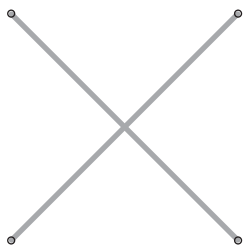
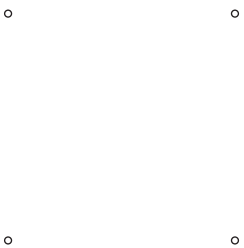
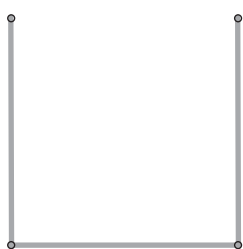
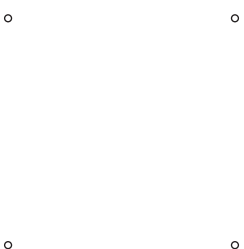

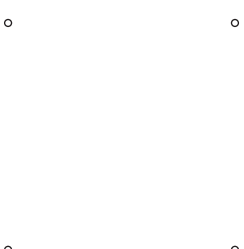
- Row 1:** A shape formed by three lines: a vertical line on the left, a vertical line on the right, and a diagonal line connecting the top-left dot to the bottom-right dot. The dots on the right are arranged in two columns of two.
- Row 2:** A shape formed by three lines: a horizontal line at the bottom, and two diagonal lines crossing each other in the center. The dots on the right are arranged in two columns of two.
- Row 3:** A shape formed by three lines: a horizontal line at the top, a horizontal line at the bottom, and a diagonal line connecting the bottom-left dot to the top-right dot. The dots on the right are arranged in two columns of two.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

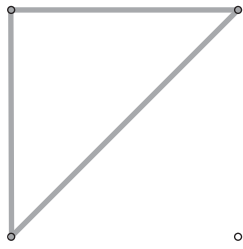
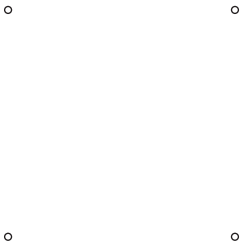
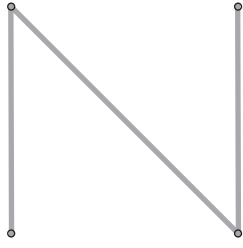
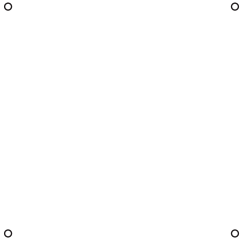
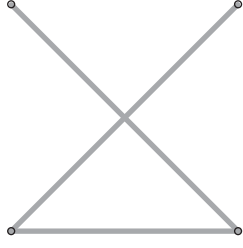
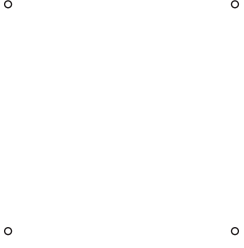
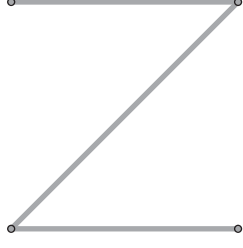
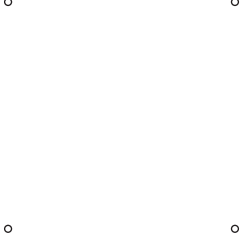
The exercise consists of four rows, each containing two 2x2 dot grids. The left grid in each row shows a specific way to connect the four dots with lines, and the right grid is a 3x2 dot grid for practice.

- Row 1: Left grid shows a vertical line connecting the top-left and bottom-left dots, and a horizontal line connecting the bottom-left and bottom-right dots. Right grid has dots at (1,1), (1,2), (2,1), (2,2), (3,1), (3,2).
- Row 2: Left grid shows a horizontal line connecting the top-left and top-right dots, and a vertical line connecting the top-right and bottom-right dots. Right grid has dots at (1,1), (1,2), (2,1), (2,2), (3,1), (3,2).
- Row 3: Left grid shows a horizontal line connecting the bottom-left and bottom-right dots, and a vertical line connecting the bottom-right and top-right dots. Right grid has dots at (1,1), (1,2), (2,1), (2,2), (3,1), (3,2).
- Row 4: Left grid shows a vertical line connecting the top-left and bottom-left dots, and a diagonal line connecting the bottom-left and top-right dots. Right grid has dots at (1,1), (1,2), (2,1), (2,2), (3,1), (3,2).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot grid puzzles, each enclosed in a dashed rectangular border. Each puzzle consists of a 3x6 grid of dots. In the first puzzle, three lines are drawn: a horizontal line connecting the first two dots of the top row, a vertical line connecting the first two dots of the first column, and a horizontal line connecting the third and fourth dots of the second row. In the second puzzle, a T-shaped figure is drawn with a horizontal line connecting the first, second, and third dots of the second row, and a vertical line connecting the second dot of the second row to the second dot of the third row. In the third puzzle, a cross-shaped figure is drawn with a vertical line connecting the second dots of the first, second, and third rows, and a horizontal line connecting the first, second, and third dots of the second row.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot grid puzzles, each enclosed in a dashed rectangular border. Each puzzle consists of a 3x4 grid of dots. In the first puzzle, the top-left dot is connected to the top-middle dot, the top-middle dot to the top-right dot, and the top-left dot to the middle-left dot. In the second puzzle, the top-left dot is connected to the middle-left dot, the middle-left dot to the middle-middle dot, the middle-middle dot to the bottom-middle dot, and the bottom-middle dot to the bottom-right dot. In the third puzzle, the top-left dot is connected to the top-middle dot, the top-left dot to the middle-left dot, the middle-left dot to the bottom-left dot, and the bottom-left dot to the bottom-middle dot.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

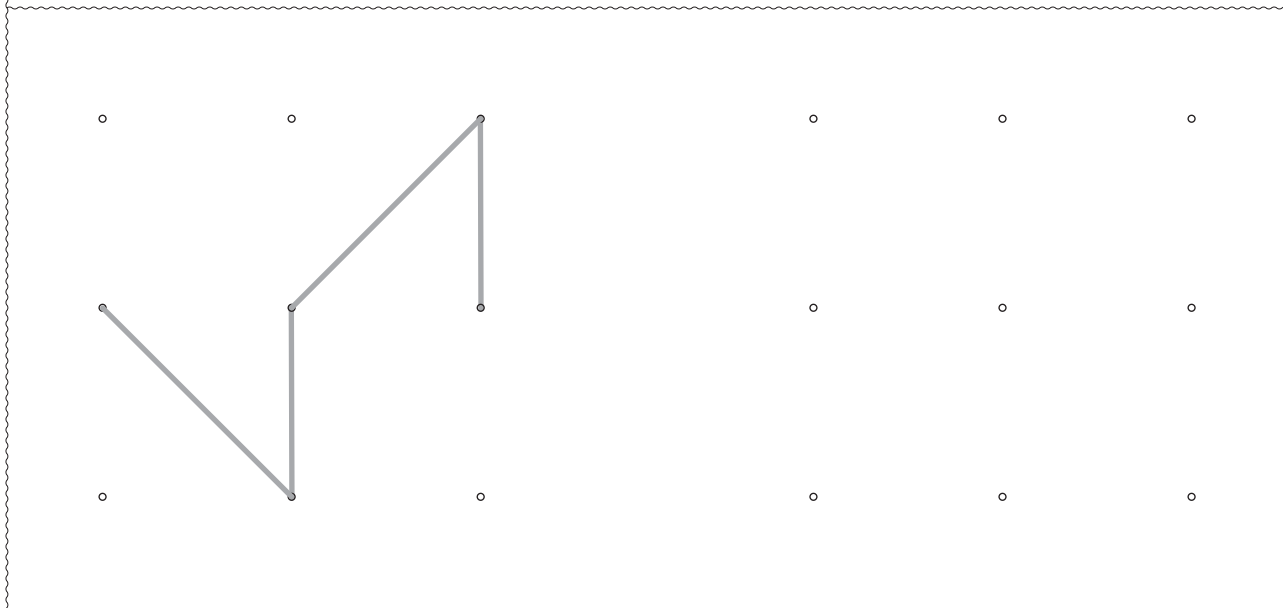
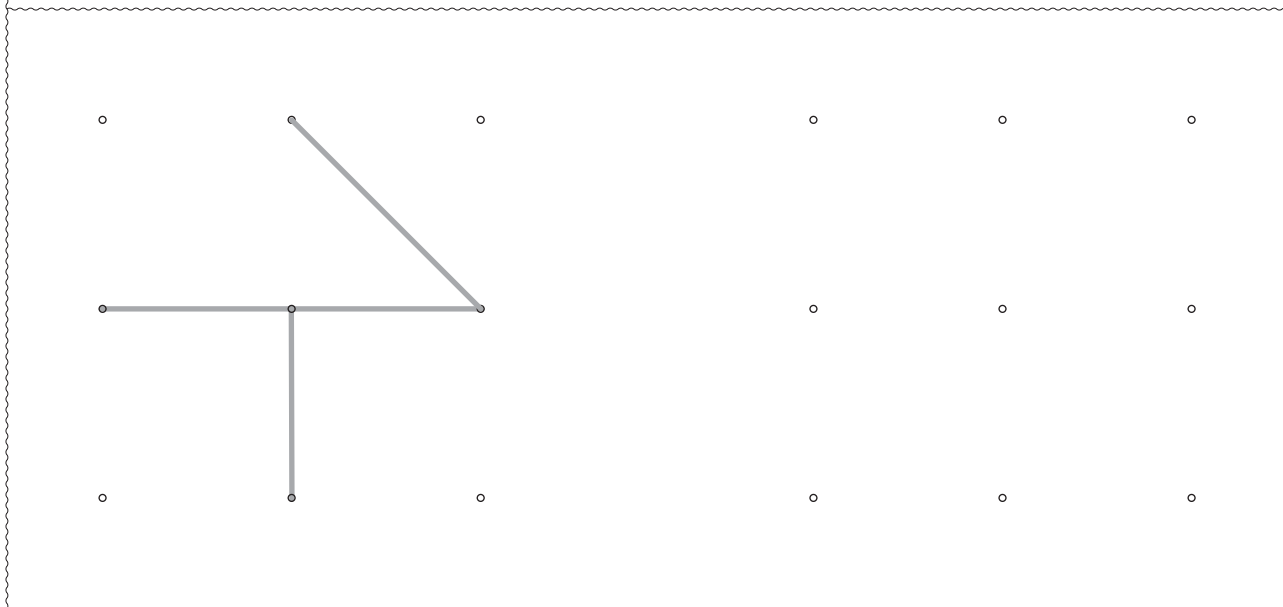
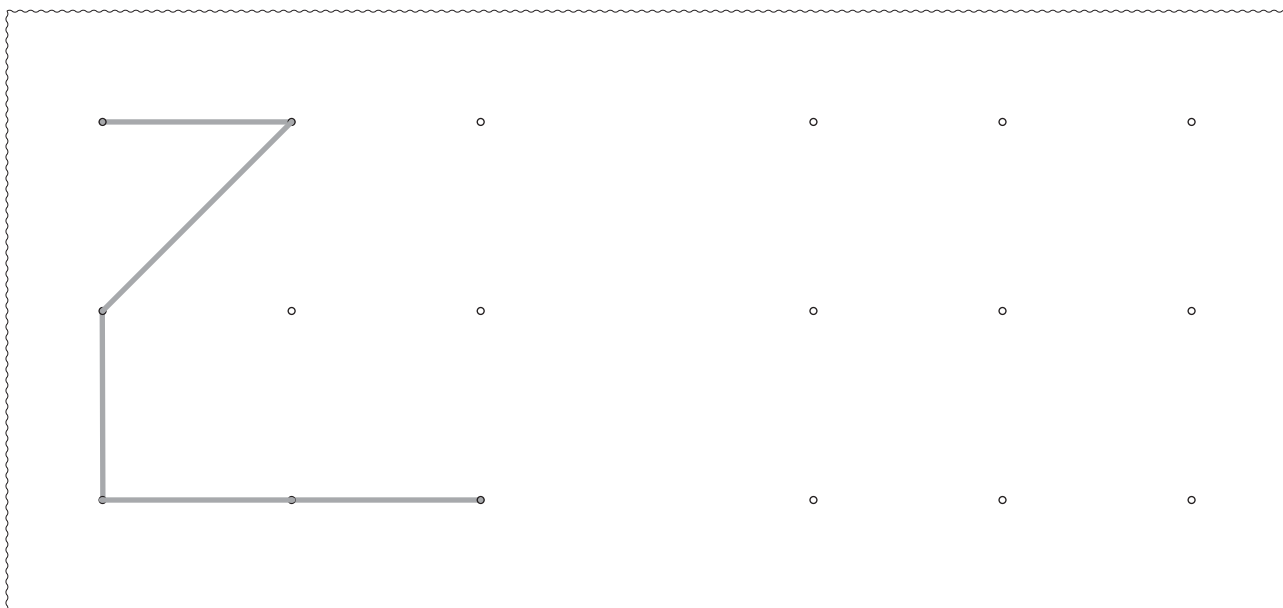
The image contains three separate dot grid puzzles, each enclosed in a dashed rectangular border. Each puzzle consists of a 5x5 grid of dots. The first puzzle shows a shape on the left with its vertices connected by solid lines: a square on the top-left and a horizontal line extending to the right from its bottom-right corner. The second puzzle shows a shape on the left: a vertical line on the left, a horizontal line at the top, and a vertical line on the right that extends down to the bottom, where it meets a horizontal line extending to the right. The third puzzle shows a shape on the left: a vertical line on the left, a horizontal line at the bottom, and a vertical line on the right that extends up to the top, where it meets a horizontal line extending to the right. To the right of each shape is a 5x5 grid of dots for the student to connect.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three rows of dot-connection exercises. Each row contains a 3x3 grid of dots on the left and a 3x3 grid of dots on the right. The connections in the left grid are as follows:

- Row 1: A vertical line connects the top-left and top-middle dots. A vertical line connects the top-middle and top-right dots. A horizontal line connects the top-left, top-middle, and top-right dots.
- Row 2: A vertical line connects the middle-left and middle-middle dots. A vertical line connects the middle-middle and middle-right dots. A horizontal line connects the middle-left, middle-middle, and middle-right dots.
- Row 3: A vertical line connects the bottom-left and bottom-middle dots. A vertical line connects the bottom-middle and bottom-right dots. A horizontal line connects the bottom-left, bottom-middle, and bottom-right dots.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.



Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot-matrix puzzles, each enclosed in a dashed border. Each puzzle consists of a shape on the left and a 5x3 grid of dots on the right. The shapes are defined by the following dot connections (row, column):

- Puzzle 1:** A zig-zag shape. Dots are at (1,1), (1,2), (2,1), (2,2), (3,2), and (3,3). Lines connect (1,1)-(1,2), (1,2)-(2,1), (2,1)-(2,2), (2,2)-(3,2), and (3,2)-(3,3).
- Puzzle 2:** A shape resembling a right-pointing arrow. Dots are at (1,1), (1,2), (2,1), (2,2), (3,2), and (3,3). Lines connect (1,1)-(1,2), (1,2)-(2,2), (2,2)-(2,3), (2,2)-(3,2), and (3,2)-(3,3).
- Puzzle 3:** A shape resembling a left-pointing arrow. Dots are at (1,1), (1,2), (2,1), (2,2), (3,2), and (3,3). Lines connect (1,1)-(1,2), (1,2)-(2,1), (2,1)-(2,2), (2,1)-(3,2), and (2,2)-(3,2).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three rows of dot-matching exercises. Each row consists of a 3x3 grid of dots on the left and another 3x3 grid of dots on the right. The first row shows a shape on the left formed by connecting dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), and (3,1). The second row shows a shape on the left formed by connecting dots at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), and (3,3). The third row shows a shape on the left formed by connecting dots at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), and (3,3).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three rows of dot-matching exercises. Each row contains a sample shape on the left and a 3x3 grid of dots on the right.

- Row 1:** The sample shape is a square with a diagonal line from the top-right corner to the middle of the left side, and another diagonal line from the middle of the left side to the bottom-right corner. The grid has 3 columns and 3 rows of dots.
- Row 2:** The sample shape is a square with a diagonal line from the top-left corner to the middle of the right side, and another diagonal line from the middle of the right side to the bottom-left corner. The grid has 3 columns and 3 rows of dots.
- Row 3:** The sample shape is a square with a diagonal line from the top-left corner to the bottom-right corner, and another diagonal line from the middle of the left side to the bottom-right corner. The grid has 3 columns and 3 rows of dots.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot-matrix puzzles, each enclosed in a dashed border. Each puzzle consists of a shape on the left and a 4x3 grid of points on the right. The shapes are: 1) A square on top of a triangle sharing a side. 2) A pentagon with a slanted top-right side. 3) A shape with a horizontal top, a vertical right side, and a diagonal from top-left to bottom-right.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three rows of dot-matching exercises. Each row contains a 3x3 grid of connected dots on the left and a 3x3 grid of isolated dots on the right.

- Row 1:** The left grid shows a shape with vertices at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), and (3,2). The right grid has dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), and (3,3).
- Row 2:** The left grid shows a shape with vertices at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), and (3,2). The right grid has dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), and (3,3).
- Row 3:** The left grid shows a shape with vertices at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), and (3,2). The right grid has dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), and (3,3).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three rows of dot-matching exercises. Each row contains a target shape on the left and a 4x3 grid of dots on the right.

- Row 1:** The target shape is a square with a vertical line extending downwards from its bottom-left corner. The dot grid is a 4x3 grid.
- Row 2:** The target shape is a square with a diagonal line from the top-left to the bottom-right, and a horizontal line extending to the right from the top-right corner. The dot grid is a 4x3 grid.
- Row 3:** The target shape is a square with a horizontal line extending to the left from its left side and a diagonal line from the bottom-left to the top-right. The dot grid is a 4x3 grid.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Four rows of dot-matching exercises. Each row consists of a 3x3 grid of dots on the left and a 3x3 grid of dots on the right. The first three dots in each row are connected by lines in the left grid, and the student must connect the corresponding dots in the right grid.

- Row 1: A horizontal line connects the first two dots in the left grid.
- Row 2: A vertical line connects the first two dots in the left grid.
- Row 3: A horizontal line connects the second and third dots in the left grid.
- Row 4: A T-shaped line connects the first three dots in the top row and the middle dot in the second row in the left grid.
- Row 5: A cross-shaped line connects the middle dots in all four rows in the left grid.
- Row 6: An L-shaped line connects the first three dots in the top row and the first two dots in the second row in the left grid.




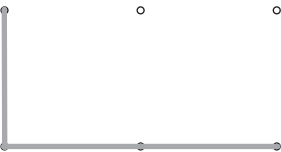


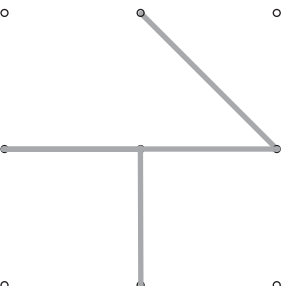

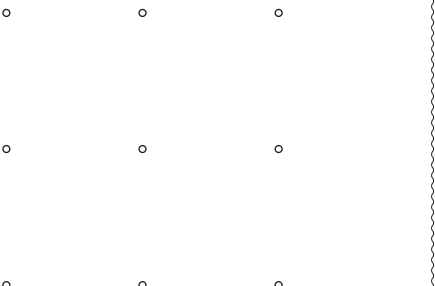
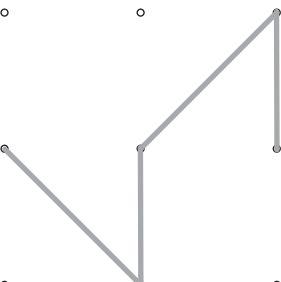

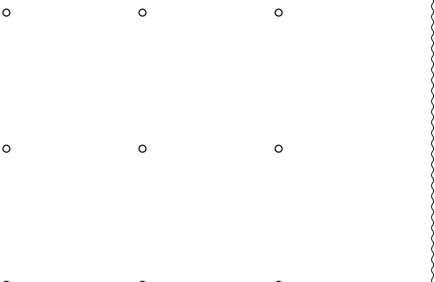
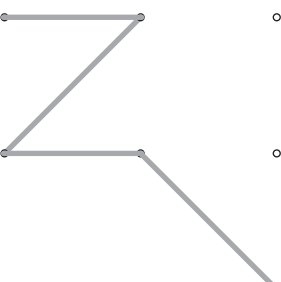

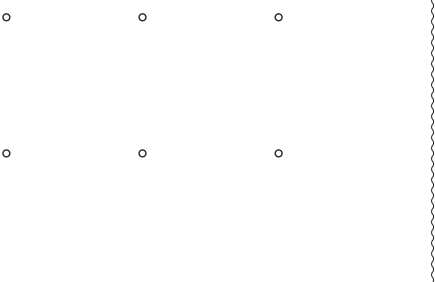
Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image shows four rows of dot-matching exercises. Each row consists of two 3x3 grids of dots. The left grid has a path of connected dots, and the right grid is empty for the student to replicate the path.

- Row 1: Left path connects (1,1), (1,2), (2,2), (2,3). Right grid is empty.
- Row 2: Left path connects (1,1), (1,2), (2,1), (2,2), (3,2), (3,3). Right grid is empty.
- Row 3: Left path connects (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,2), (3,3). Right grid is empty.
- Row 4: Left path connects (1,1), (1,2), (2,1), (2,2), (2,3), (3,2), (3,3). Right grid is empty.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

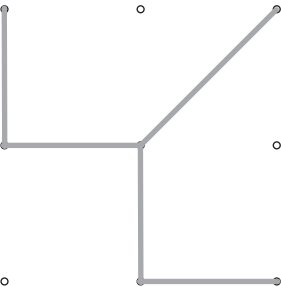
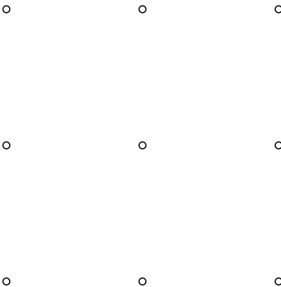
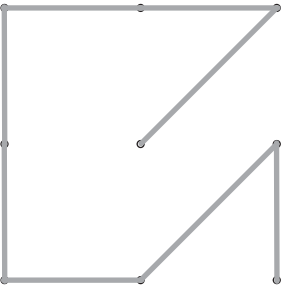
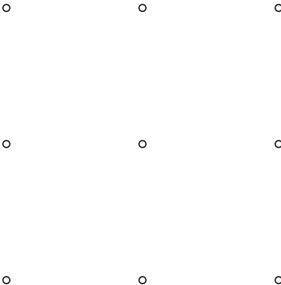
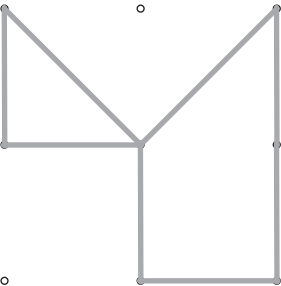
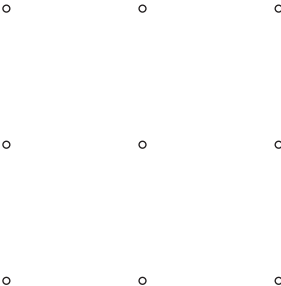
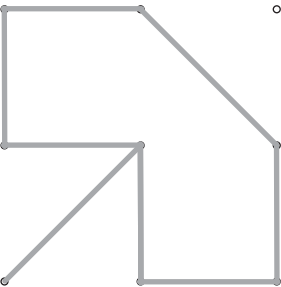
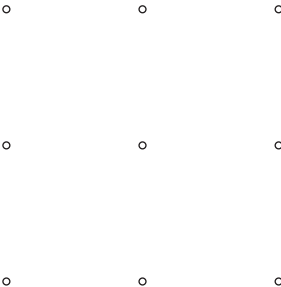
		
		
		
		
		

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

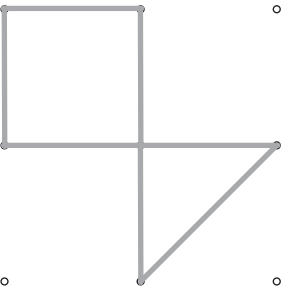
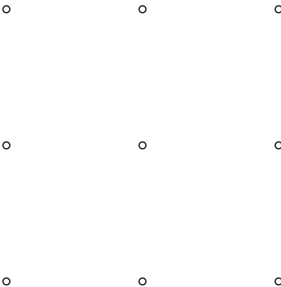
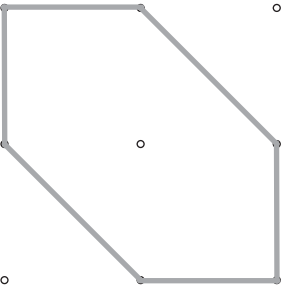
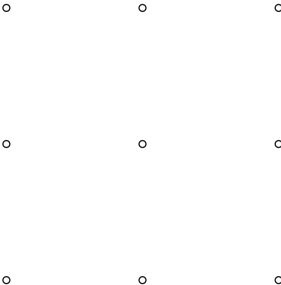
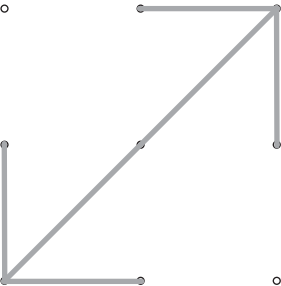
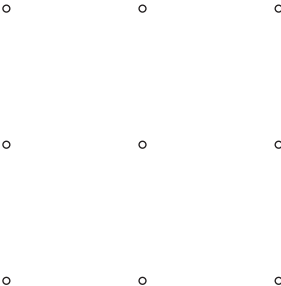
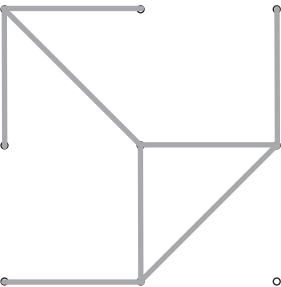
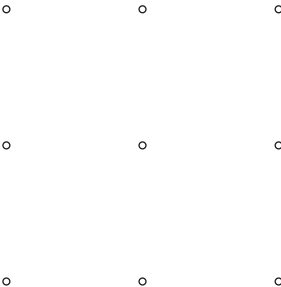
Four rows of dot-matching exercises. Each row contains a 3x3 grid of dots on the left with a path connecting some of them, and a 3x3 grid of dots on the right for matching.

- Row 1:** The left grid shows a path connecting dots at (1,1), (1,2), (2,2), (2,3), (3,3), (3,2), and (3,1) in a zig-zag pattern. The right grid has 9 empty dots.
- Row 2:** The left grid shows a path connecting dots at (1,1), (1,2), (2,1), (2,2), (3,2), and (3,1). The right grid has 9 empty dots.
- Row 3:** The left grid shows a path connecting dots at (1,1), (1,2), (1,3), (2,3), (2,2), (2,1), (3,1), and (3,2). The right grid has 9 empty dots.
- Row 4:** The left grid shows a path connecting dots at (1,1), (1,2), (2,2), (2,3), (3,3), (3,2), and (3,1). The right grid has 9 empty dots.

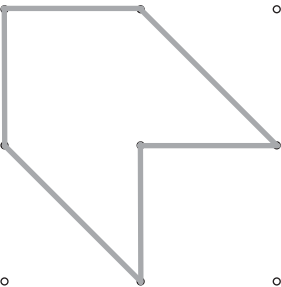
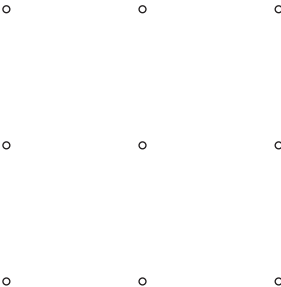
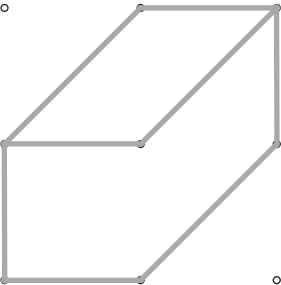
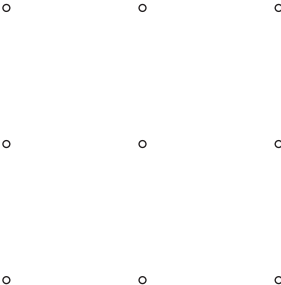
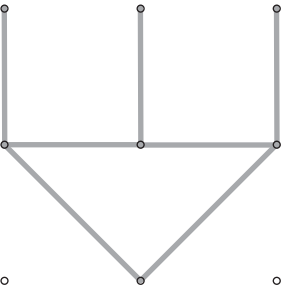
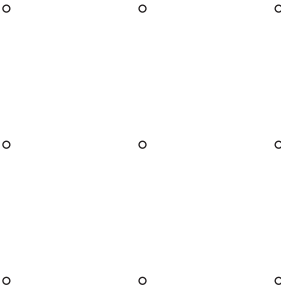
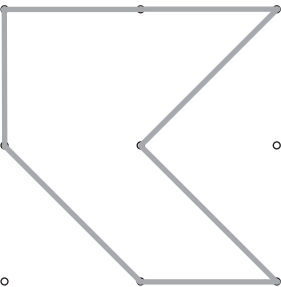
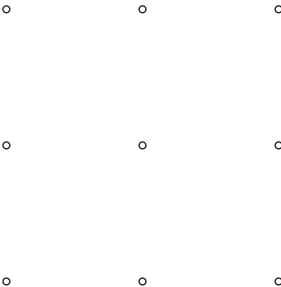
Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Connect the dots!

Connect the dots!

Connect the dots!

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot grid puzzles, each enclosed in a dashed border. Each puzzle consists of a 4x4 grid of dots. The first puzzle shows a path of 7 connected dots: a vertical line of 4 dots on the left, and a horizontal line of 4 dots at the top. The second puzzle shows a path of 5 connected dots: a horizontal line of 2 dots on the top left, a vertical line of 2 dots in the middle, and a horizontal line of 2 dots on the top right. The third puzzle shows a path of 7 connected dots: a vertical line of 2 dots on the left, a horizontal line of 2 dots in the middle, a vertical line of 2 dots on the right, and a horizontal line of 2 dots at the bottom.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three rows of dot grid puzzles. Each row consists of a 4x4 grid of dots on the left and a 4x4 grid of dots on the right. The connections between dots in the left grid are as follows:

- Row 1:** Two horizontal lines, each connecting two adjacent dots in the top row.
- Row 2:** Two vertical lines, each connecting two adjacent dots in the first and fourth columns.
- Row 3:** Two horizontal lines, each connecting two adjacent dots in the bottom row.

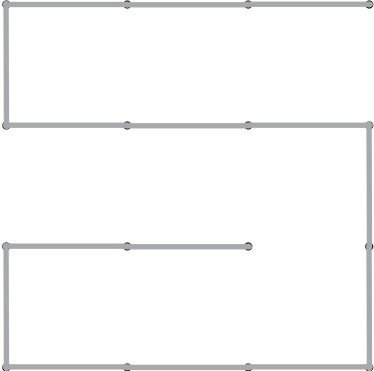
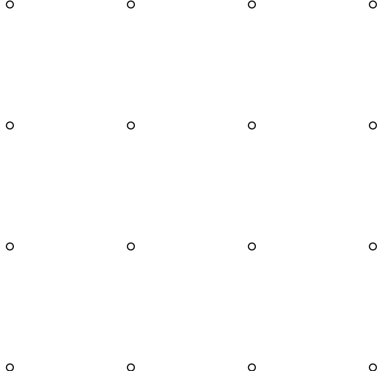
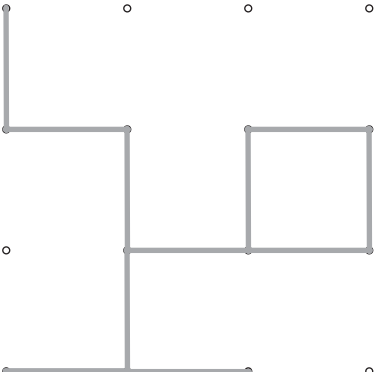
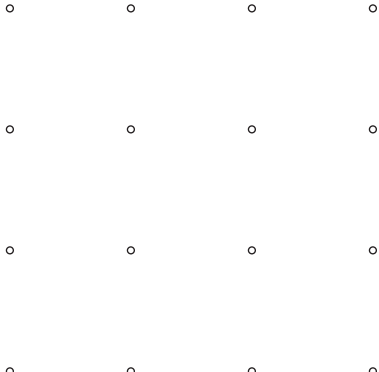
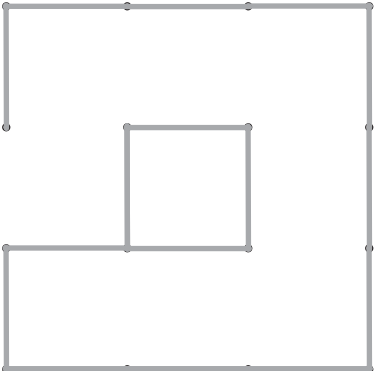
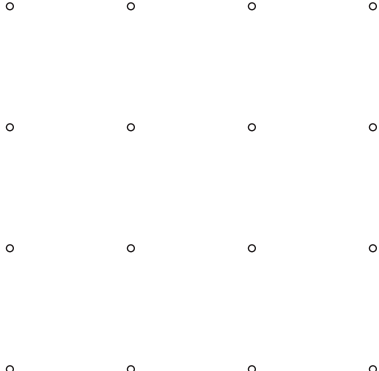
The right grids are empty 4x4 dot patterns for the student to replicate the connections from the left grid.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three identical dot grid puzzles are arranged vertically. Each puzzle consists of a 4x4 grid of dots. The left grid in each puzzle shows a path of connected dots, and the right grid shows the same 4x4 grid of dots without connections. The paths are as follows:

- Top puzzle:** The path starts at (row, col) (1,2), goes right to (1,3), then down to (2,3), then left to (2,1), then down to (3,1), then right to (3,4).
- Middle puzzle:** The path starts at (1,2), goes down to (2,2), then right to (2,4), then left to (3,2), then down to (4,2).
- Bottom puzzle:** The path starts at (1,1), goes down to (2,1), then right to (2,2), then down to (3,2), then right to (3,4).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

A 4x4 dot grid with a path connecting dots in a specific pattern. The path starts at (1,1), goes right to (2,1), down to (2,2), right to (3,2), down to (3,3), right to (4,3), down to (4,4), left to (3,4), up to (2,4), left to (1,4), and down to (1,3).

A 4x4 dot grid with a path connecting dots in a specific pattern. The path starts at (1,4), goes down to (2,4), left to (2,3), down to (3,3), left to (3,2), down to (4,2), left to (4,1), and up to (3,1).

A 4x4 dot grid with a path connecting dots in a specific pattern. The path starts at (1,1), goes right to (2,1), down to (2,2), right to (3,2), down to (3,3), right to (4,3), down to (4,4), left to (3,4), up to (2,4), left to (1,4), and down to (1,3).

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

A 4x4 dot grid on the left contains a connected shape. The shape is composed of a 2x2 square in the top-left corner, a horizontal line extending from the bottom-right corner of this square to the right edge of the grid, and a 2x2 square in the bottom-right corner. The top-right corner of the bottom-right square is missing. To the right of this grid is another 4x4 dot grid for tracing.

A 4x4 dot grid on the left contains a connected shape. The shape is composed of a 2x2 square in the top-right corner, a horizontal line extending from the bottom-left corner of this square to the left edge of the grid, and a 2x2 square in the bottom-left corner. The top-left corner of the bottom-left square is missing. To the right of this grid is another 4x4 dot grid for tracing.

A 4x4 dot grid on the left contains a connected shape. The shape is composed of a 2x2 square in the top-right corner, a horizontal line extending from the bottom-left corner of this square to the left edge of the grid, and a 2x2 square in the bottom-left corner. The top-left corner of the bottom-left square is missing. To the right of this grid is another 4x4 dot grid for tracing.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot grid puzzles, each within a dashed rectangular border. Each puzzle consists of a 4x4 grid of dots. The left grid in each puzzle shows a path of connected dots, and the right grid shows the same path of dots without connections, intended for the student to replicate the connections.

- Top puzzle:** The left grid shows a path starting at (row, col) (1,1), going down to (2,1), then right to (2,2), then right to (2,3), and finally right to (2,4). The right grid shows the same 4x4 grid of dots.
- Middle puzzle:** The left grid shows a path starting at (1,1), going down to (2,1), then right to (2,2), then right to (2,3), then down to (3,3), and finally right to (3,4). The right grid shows the same 4x4 grid of dots.
- Bottom puzzle:** The left grid shows a path starting at (1,1), going down to (2,1), then right to (2,2), then down to (3,2), then down to (4,2), and finally right to (4,3). The right grid shows the same 4x4 grid of dots.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

The image contains three separate dot grid puzzles, each within a dashed rectangular border. Each puzzle consists of a 4x4 grid of dots. In each puzzle, a path is drawn between a subset of dots, and the goal is to replicate this path on the right-hand grid of the same puzzle.

- Top puzzle:** The path starts at the top-left dot, moves right to the second dot, then diagonally down-right to the third dot, then vertically down to the fourth dot, then diagonally down-right to the bottom-right dot, and finally horizontally left to the second dot from the right.
- Middle puzzle:** The path starts at the bottom-left dot, moves right to the second dot, then vertically up to the third dot, then horizontally right to the fourth dot, then diagonally up-right to the top-right dot, then horizontally left to the second dot from the right, and finally vertically down to the bottom-right dot.
- Bottom puzzle:** The path starts at the top-left dot, moves right to the second dot, then vertically down to the third dot, then horizontally right to the fourth dot, then diagonally down-right to the bottom-right dot, then horizontally left to the second dot from the right, and finally vertically up to the top-right dot.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Three rows of dot grid puzzles. Each row contains a 4x4 grid on the left with a path of connected dots and a 4x4 grid of dots on the right for tracing.

- Row 1:** The path starts at (1,1), goes right to (1,3), up to (1,3), down to (2,3), left to (2,1), down to (3,1), right to (3,3), and finally down to (3,4). The grid on the right is empty.
- Row 2:** The path starts at (1,1), goes down to (1,1), right to (1,3), down to (2,3), left to (2,1), down to (3,1), right to (3,3), and finally up to (3,4). The grid on the right is empty.
- Row 3:** The path starts at (1,1), goes down to (1,1), right to (1,2), down to (2,2), right to (2,4), up to (3,4), left to (3,3), and finally down to (3,3). The grid on the right is empty.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

A 4x4 dot grid on the left with a connected path of dots. The path starts at (1,1), goes down to (2,1), right to (2,2), down to (3,2), right to (3,3), up to (3,4), right to (3,5), down to (4,5), left to (4,4), up to (4,3), left to (4,2), and finally up to (3,2).

A 4x4 dot grid on the right for tracing the path.

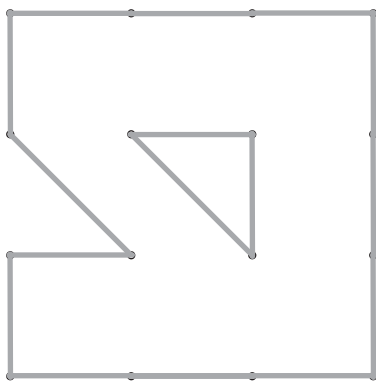
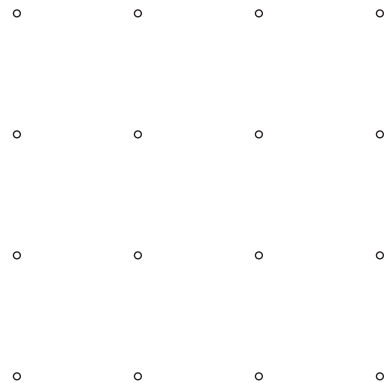
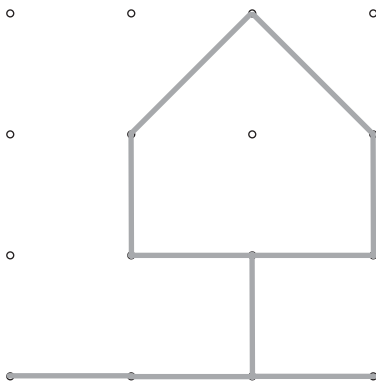
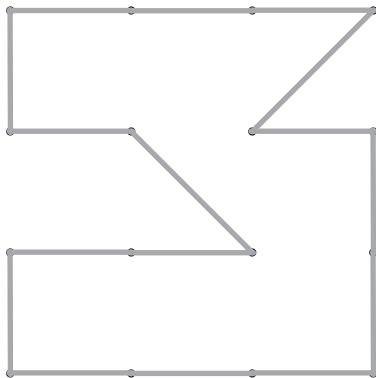
A 4x4 dot grid on the left with a connected path of dots. The path starts at (1,1), goes down to (2,1), right to (2,2), down to (3,2), right to (3,3), up to (3,4), right to (3,5), down to (4,5), left to (4,4), up to (4,3), left to (4,2), and finally up to (3,2).

A 4x4 dot grid on the right for tracing the path.

A 4x4 dot grid on the left with a connected path of dots. The path starts at (1,1), goes down to (2,1), right to (2,2), down to (3,2), right to (3,3), up to (3,4), right to (3,5), down to (4,5), left to (4,4), up to (4,3), left to (4,2), and finally up to (3,2).

A 4x4 dot grid on the right for tracing the path.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.



Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

A 4x4 dot grid on the left contains a connected shape. The shape is composed of several line segments connecting the dots. It features a top row with two triangles, a middle horizontal line, and a bottom row with a trapezoid on the left and a square on the right. To the right of this grid is an empty 4x4 dot grid for tracing practice.

A 4x4 dot grid on the left contains a connected shape. The shape consists of a vertical rectangle on the left, a horizontal line in the middle, and a triangular roof on the right. To the right of this grid is an empty 4x4 dot grid for tracing practice.

A 4x4 dot grid on the left contains a connected shape. The shape consists of a square on the left, a diagonal line, and a vertical line on the right. To the right of this grid is an empty 4x4 dot grid for tracing practice.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

o	o	o	o
o	o	o	o
o	o	o	o
o	o	o	o

o	o	o	o
o	o	o	o
o	o	o	o
o	o	o	o

o	o	o	o
o	o	o	o
o	o	o	o
o	o	o	o

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

A 4x4 dot grid on the right, intended for tracing the shape shown on the left.

A 4x4 dot grid on the right, intended for tracing the shape shown on the left.

A 4x4 dot grid on the right, intended for tracing the shape shown on the left.

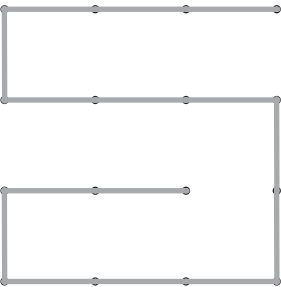
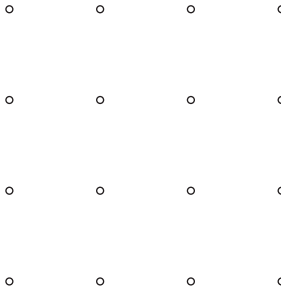
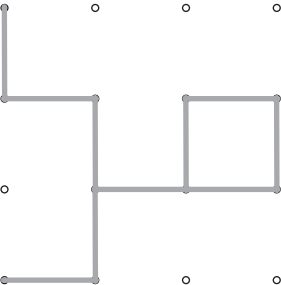
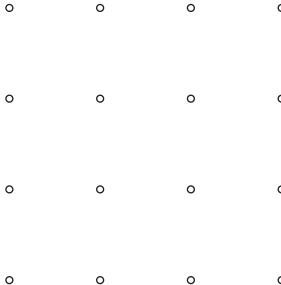
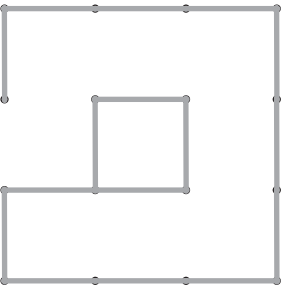
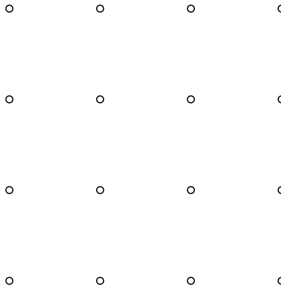
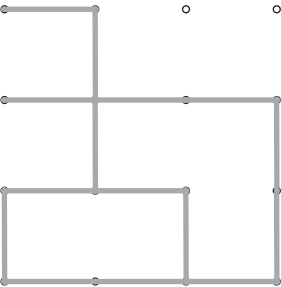
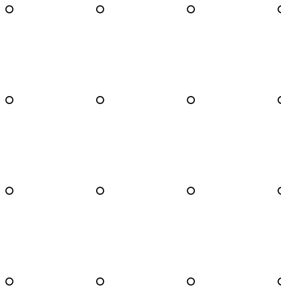
Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

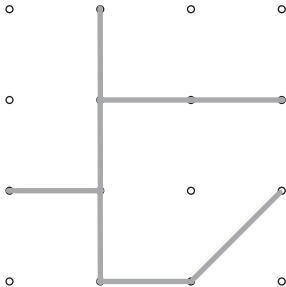

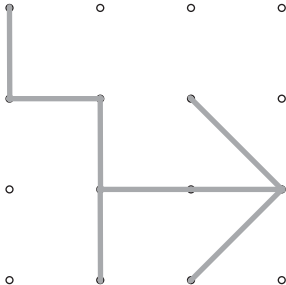

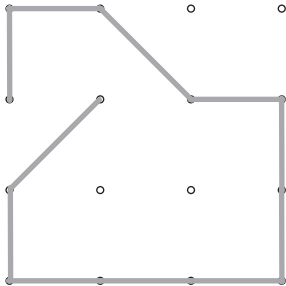

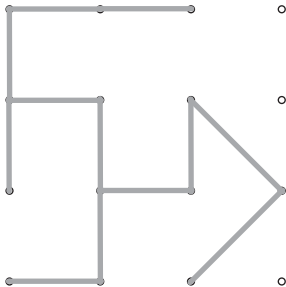

Four rows of dot-matching exercises. Each row contains a 4x4 grid of dots on the left with a specific shape drawn, and a 4x4 grid of dots on the right for copying.

- Row 1:** The left grid shows a shape with a vertical line on the far right, a horizontal line at the top, a vertical line on the left, a horizontal line at the bottom, and a horizontal line connecting the second and third dots from the left.
- Row 2:** The left grid shows a shape with a horizontal line at the top, a vertical line on the left, a horizontal line connecting the second and third dots from the left, a vertical line on the right, and a horizontal line at the bottom.
- Row 3:** The left grid shows a shape with a horizontal line at the top, a vertical line on the left, a horizontal line connecting the second and third dots from the left, a vertical line on the right, and a horizontal line at the bottom.
- Row 4:** The left grid shows a shape with a horizontal line at the top, a vertical line on the left, a horizontal line connecting the second and third dots from the left, a vertical line on the right, and a horizontal line at the bottom.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

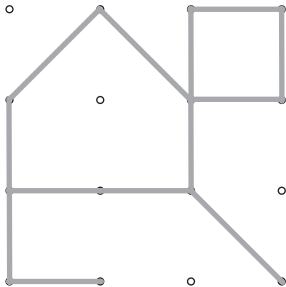
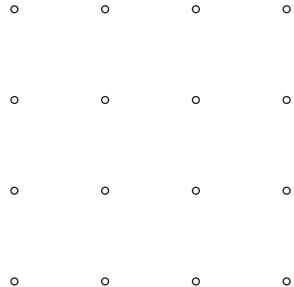
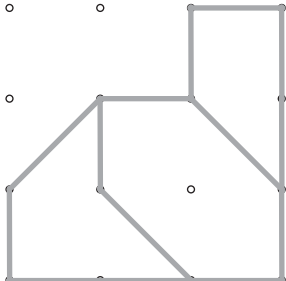

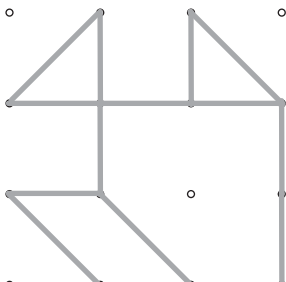
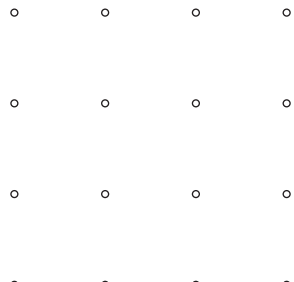
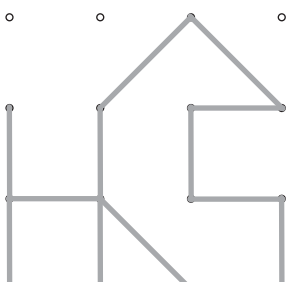
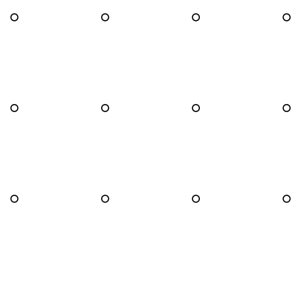
Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

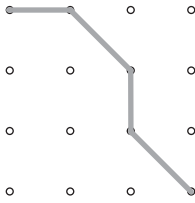
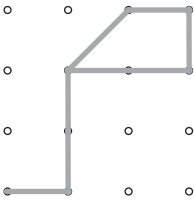
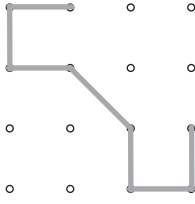
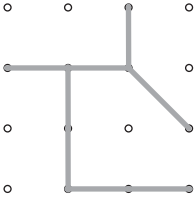
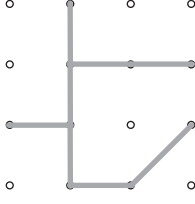
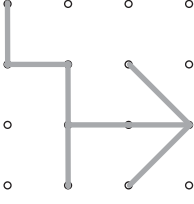
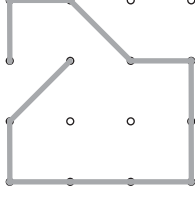
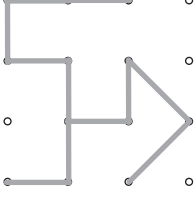
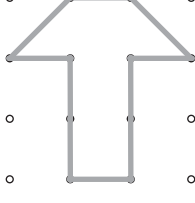
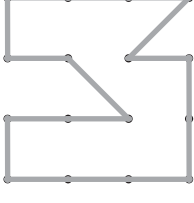
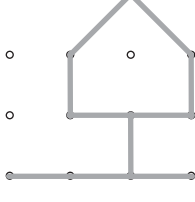
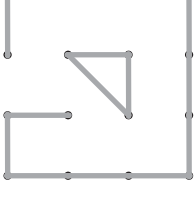
	
	
	
	

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

Poveži pike na desni strani na enak način kot so povezane v levi mreži pik.

VIRI

- Beery, K.E. in Beery, N.A. (2004). *Beery™ VMI Developmental Teaching Activities*. NCS Pearson Assessments: Minneapolis.
- Beery, K.E., Beery, N.A. in Evans, L. (2004a). *Beery™ VMI My Book of Shapes with Instructor's Guide*. NCS Pearson Assessments: Minneapolis.
- Beery, K.E., Beery, N.A. in Evans, L. (2004b). *Beery™ VMI My Book of Letters and Numbers with Instructor's Guide*. NCS Pearson Assessments: Minneapolis.
- Berninger, V.W. (2012, januar). Evidence-Based, Developmentally Appropriate Writing Skills K to 5: Teaching the Orthographic Loop of Working Memory to Write Letters So Developing Writers Can Spell Words, and Express Ideas. *Handwriting in the 21st century, Educational Summit*, Washington, D.C. Prosojnice dosežene na http://www.hw21summit.com/media/zb/hw21/H2937N_Berninger_presentation.pdf
- Brown, C.G. (2010). Improving fine motor skills in young children: an intervention study. *Educational Psychology in Practice*, 26(3), 269–278.
- Cameron, C.E., Brock, L.L., Murrah, W.M., Bell, L.H., Worzalla, S.L., Grissmer, D. in Morrison, F.J. (2012). Fine Motor Skills and Executive Function Both Contribute to Kindergarten Achievement. *Child Development*, 83(4), 1229–1244.
- Carlson, A.G., Rowe, E. in Curby, T.W. (2013). Disentangling Fine Motor Skills' Relations to Academic Achievement: The Relative Contributions of Visual-Spatial Integration and Visual-Motor Coordination. *Journal of Genetic Psychology*, 174(5), 514–533.
- Cirelli Copedde, A., Martins Okuda, P.M. in Aparecida Capellini, S. (2012). Performance of Children with Learning Difficulties in Fine Motor Function and Handwriting. *Journal of Human Growth and Development*, 22(3), 297–306.
- Curby, T.W. in Carlson, A.G. (2014). Fine Motor Skills and Academic Achievement. *Psychology Today*, 5. februar 2013.
- Davis, E. E., Pitchford, N. J. in Limback, E. (2011). The interrelation between cognitive and motor development in typically developing children aged 4–11 years is underpinned by visual processing and fine manual control. *British Journal of Psychology*, 102, 569–584.
- Dinehart, L. in Manfra, L. (2013). Associations between low-income children's fine motor skills in preschool and academic performance in second grade. *Early Education and Development*, 24, 138–161.
- Eisenstat, Z.M. (2006). *Improving visio-motor coordination in non-dominant hands through tracing tasks*. DSpace@MIT: Massachusetts Institute of Technology.
- Fahimi, M., Aslankhani, M.A., Shojaee, M., Beni, M.A. in Gholhaki, M.R. (2013). The Effect of Four Motor Pro-grams on Motor Proficiency in 7-9 Years Old Boys. *Middle-East Journal of Scientific Research*, 13(11), 1526–1532.
- Golos, A., Sarid, M., Weill, M. in Weintraub, N. (2011). Efficacy of an early intervention program for at-risk preschool boys: A two-group control study. *American Journal of Occupational Therapy*, 65, 400–408.
- Grissmer, D., Grimm, K.J., Aiyer, S.M., Murrah, W.H. in Steele, J.S. (2010). Fine Motor Skills and Early Comprehension of the World: Two New School Readiness Indicators. *Developmental Psychology*, 46 (5), 1008–1017.
- Grissmer, D.W., Mashburn, A.J., Cottone, E., Chen, W.B., Brock, L.L., Murrah, W.M. in Cameron, C.E. (2013). Play-based after-school curriculum improves measures of executive function, visuospatial and math skills and classroom behavior for high risk K-1 children. Predstavljeno na konferenci *Society for Research in Child Development*, Seattle, WA.
- Gunderson, E.A., Ramirez, G., Beilock, S.L. in Levine, S. C. (2012). The Relation Between Spatial Skill and Early Number Knowledge: The Role of the Linear Number Line. *Developmental Psychology*. 48(5), 1229–1241.
- Hamm, E.M. in Harper, K.A. (2014). The Role of RtI in a Kindergarten Enrichment Program. *Reading and Writing Quarterly*, 30(1), 32–50.
- Kambas, A., Fatouros, Y., Christoforidis, C., Venetsanou, F., Papageorgiou, P., Giannakidou, D. in Aggeloussis, N. (2010). The effects of Psychomotor Intervention, on Visual-Motor Control as a Graphomotor aspect in preschool age. *European Psychomotoricity Journal*, 3(1), 54–61.
- Keller, M. (2001). Handwriting Club: Using Sensory Integration Strategies To Improve Handwriting. *Intervention in School and Clinic*, 37(1), 9–12.
- Lahav, O., Apter, A. in Ratzon, N.Z. (2013). Psychological adjustment and levels of self esteem in children with visual-motor integration difficulties influences the results of a randomized intervention trial. *Research in Developmental Disabilities*, 34, 56–64.
- Landy, J. M. in Burrige, K. R. (1999). *Ready-to-Use Fine Motor Skills and Handwriting Activities for Young Children: Teaching, Remediation and Assessment*. Upper Saddle River, NJ: Pearson Education.

- Luo, Z., Jose, P.E., Huntsiger, C.S in Pigott, T.D. (2007). Fine motor skills and mathematics achievement in East Asian American and European American kindergartners and first graders. *British Journal of Developmental Psychology*, 25, 595–614.
- Morales, J., Gonzalez, L.M., Guerra, M., Virgili, C. in Unnithan, V. (2011). Physical activity, perceptual-motor performance, and academic learning in 9-to-16-years-old school children. *International Journal of Sport Psychology*, 42, 401-415.
- Murrah, W., Chen, W.B. in Cameron, C.E. (2013). Why do Fine Motor Skills Predict Mathematics? Construct Validity of the Design Copying Task. *The Society for Research on Educational Effectiveness Fall 2013 Conference*, Washington, D.C.
- Pagani, L.S., Fitzpatrick, C., Archambault, I. in Janosz, M. (2010). School Readiness and Later Achievement: A French Canadian Replication and Extension. *Developmental Psychology*, 46(5), 984–994.
- Pagani, L.S., Fitzpatrick, C., Belleau, L. in Janosz, M. (2011). *Predicting Academic Achievement in Fourth Grade from Kindergarten Cognitive, Behavioural and Motor Skills*. Québec Longitudinal Study of Child Development (QLSCD 1998-2010) – From Birth to 10 Years of Age, Québec, Institut de la statistique du Québec, Vol. 6, Fascicle 1.
- Pagani, L.S. in Massier, S. (2012). Links between Motor Skills and Indicators of School Readiness at Kindergarten Entry in Urban Disadvantaged Children. *Journal of Educational and Developmental Psychology*, 2(1), 95-107.
- Pereira D.M, Araújo R.C.T. in Braccialli L.M.P. (2011). Relationship analysis between visual-motor integration ability and academic performance. *Journal of Human Growth and Development*, 21(3), 808-817.
- Piek, J.P., Hands, B. in Licari, M.K. (2012). Assessment of Motor Functioning in the Preschool Period. *Neuropsychological Review*. Na spletu. doi: 10.1007/s11065-012-9211-4.
- Pontart V., Bidet-Ildei C., Lambert E., Morisset P., Flouret L. in Alamargot D. (2013). Influence of Handwriting Skills during Spelling in Primary and lower Secondary Grades. *Frontiers in Psychology*. Na spletu. doi:10.3389/fpsyg.2013.00818
- Ratzon N.Z., Efraim D in Bart O. (2007). A short-term graphomotor program for improving writing readiness skills of first-grade students. *American Journal of Occupational Therapy*, 61(4), 399-405.
- Roebers, C.M., Röthlisberger, M., Neuenschwander, R., Cimeli, P., Michel, E in Jäger, K. (2013). The relation between cognitive and motor performance and their relevance for children's transition to school: A latent variable approach. *Human Movement Science*. Na spletu: <http://dx.doi.org/10.1016/j.humov.2013.08.011>
- Sheridan, S.R. (2002). The Neurological Significance of Children's Drawing: The Scribble Hypothesis. *Journal of Visual Literacy*, 22(2), 107-128.
- Sortor, J.M. in Kulp, M.T. (2003). Are the results of the Beery–Buktenica Developmental Test of Visual-Motor Integration and its subtests related to achievement test scores? *Optometry and Vision Science*, 80(11), 758–763.
- Sparks, S.D. (2013). Studies Link Early Spatial Skills to Math Achievement. *Education week*, 15. maj 2013.
- St. John, S. (2013). Factoring in Fine Motor: How Improving Fine Motor Abilities Impacts Reading and Writing. *Illinois Reading Council Journal*, 41(4), 134-146.
- Stewart, R.A., Rule, A.C. in Giordano, D.A. (2007). The Effect of Fine Motor Skill Activities on Kindergarten Student Attention. *Early Childhood Education Journal*, 35(2), 103-109.
- Stoeger, H., Suggate, S. in Ziegler, A. (2013). Identifying the causes of underachievement: A plea for the inclusion of fine motor skills. *Psychological Test and Assessment Modeling*, 55 (3), 274-288.
- Stoeger, H. in Ziegler, A. (2010). How Fine Motor Skills Influence the Assessment of High Abilities and Underachievement in Math. *Journal for the Education of the Gifted*, 34(2), 195-219.
- Stoeger, H. in Ziegler, A. (2013). Deficits in Fine Motor Skills and Their Influence on Persistence among Gifted Elementary School Pupils. *Psychological Test and Assessment Modeling*, 55 (3), 274-288.
- Stoeger, H., Ziegler, A. in Martzog, P. (2008). Deficits in fine motor skill as an important factor in the identification of gifted underachievers in primary school. *Gifted Education International*, 29(1), 28-42.
- Sudsawad, P., Trombly, C.A., Henderson, A. in Tickle-Degnen, L. (2002). Testing the effect of kinaesthetic training on hand-writing performance in first-grade students. *American Journal of Occupational Therapy*, 56, 26-33.
- Theodorescu, I. in Addy, L. (2007). *Write from the Start 1: Developing Fine-Motor and Perceptual Skills for Effective Handwriting, Book 1*. Cambridge: LDA.
- Theodorescu, I. in Addy, L. (2007). *Write from the Start 1: Developing Fine-Motor and Perceptual Skills for Effective Handwriting, Book 2*. Cambridge: LDA.
- Vinter, A. in Chartrel, E. (2010). Effects of different types of learning on handwriting movements in young children. *Learning and Instruction*, 20, 476-486.
- Wilson, F.R. (1999). *The Hand: How its Use Shapes the Brain, Language, And Human Culture*. New York: Vintage books.