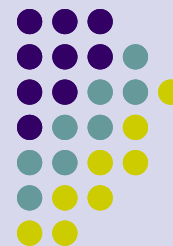


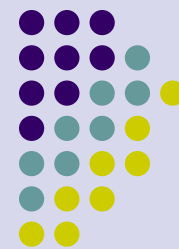
UTVÁŘENÍ PŘEDMATEMATICKÝCH PŘEDSTAV



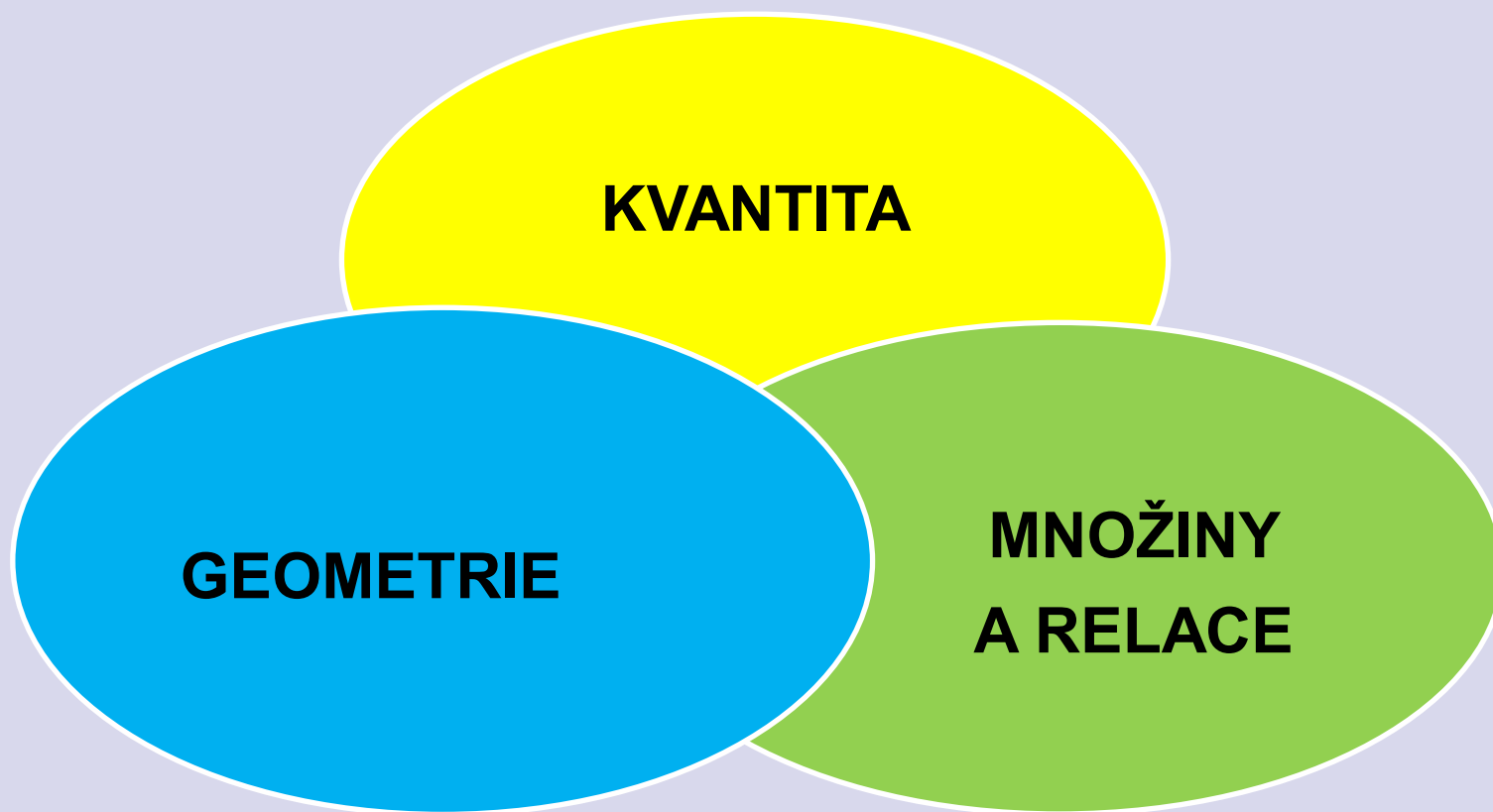
RNDr. HANA LIŠKOVÁ

**VOŠP a SPgŠ LITOMYŠL
SUMA JČMF**

STRUKTURA WEBINÁŘE

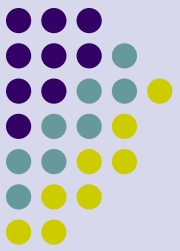


Základní oblasti předmatematických představ



ZÁKLADNÍ PRINCIPY

UTVÁŘENÍ PŘEDSTAV PŘEDŠKOLÁKŮ



❖ MANIPULATIVNÍ ČINNOSTI (HMAT)

Dítě posunuje, přemísťuje, zaměňuje, přidává, odebírá, překládá (z místa na místo, papír)

Nejde pouze o vnímání tvarů, ale i kvantity.

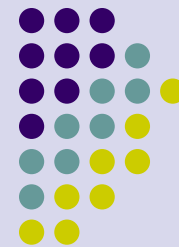
❖ HRY (SOCIÁLNÍ VZTAHY)

Dramatizace, prožitek vede k pochopení

❖ POZOR - NEBEZPEČÍ FORMÁLNÍHO UČENÍ

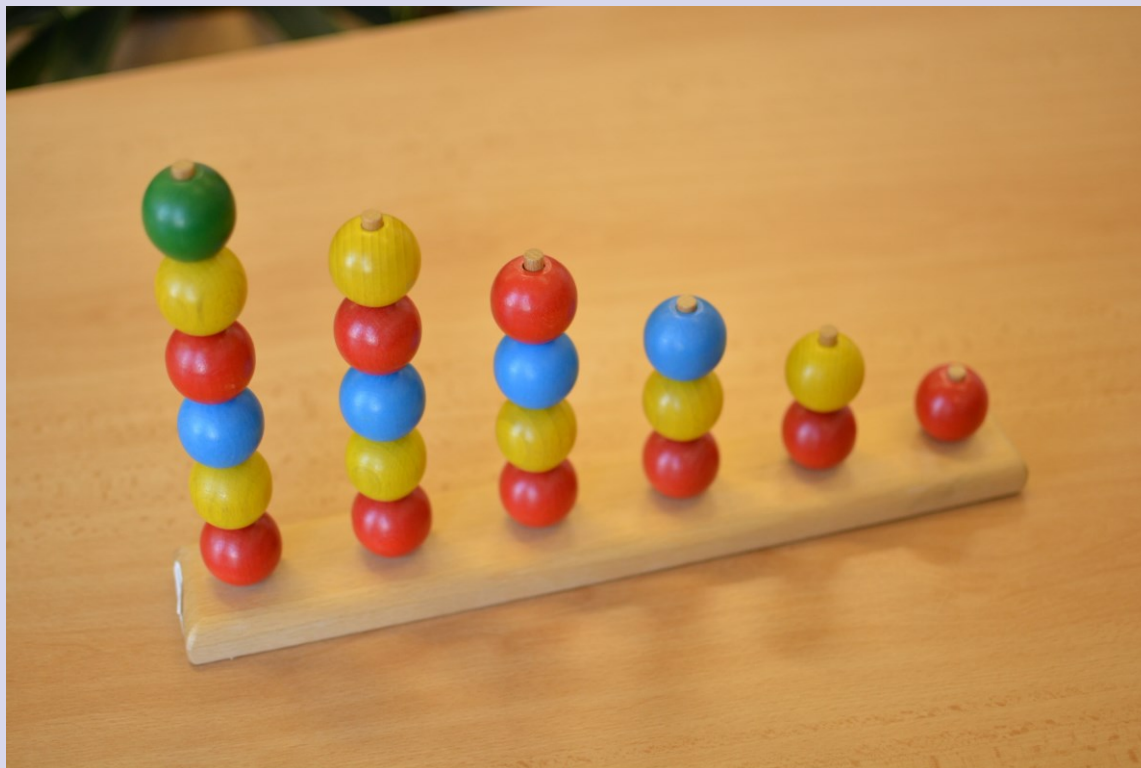
Předčasné užívání symboliky (číslic, znaků +)

KVANTITA

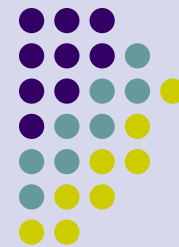


NAVLÉKACÍ POČÍTADLO

PRINCIPY NEFORMÁLNÍ PRÁCE S KVANTITOU

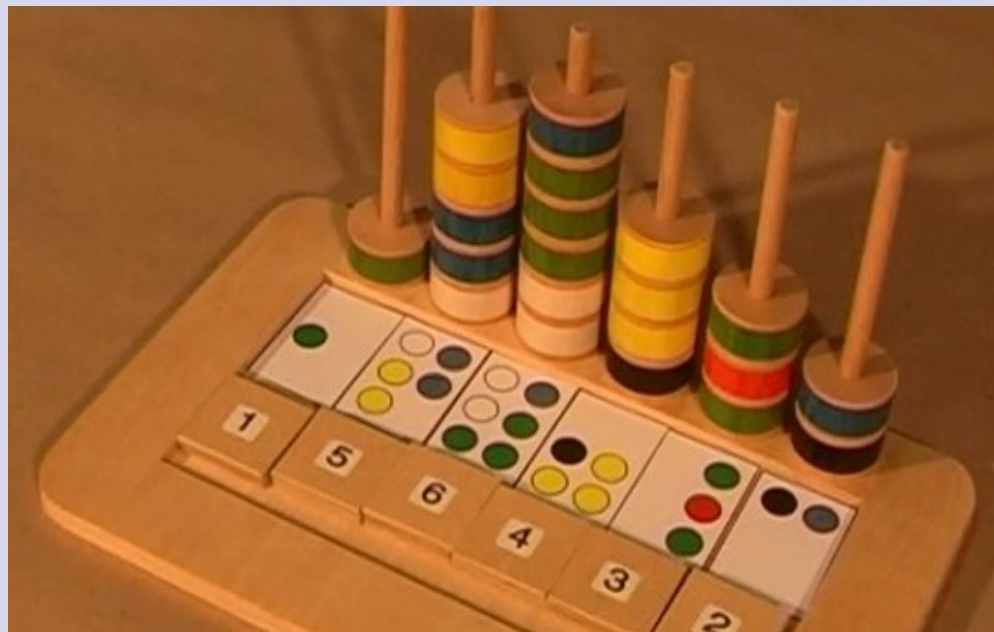
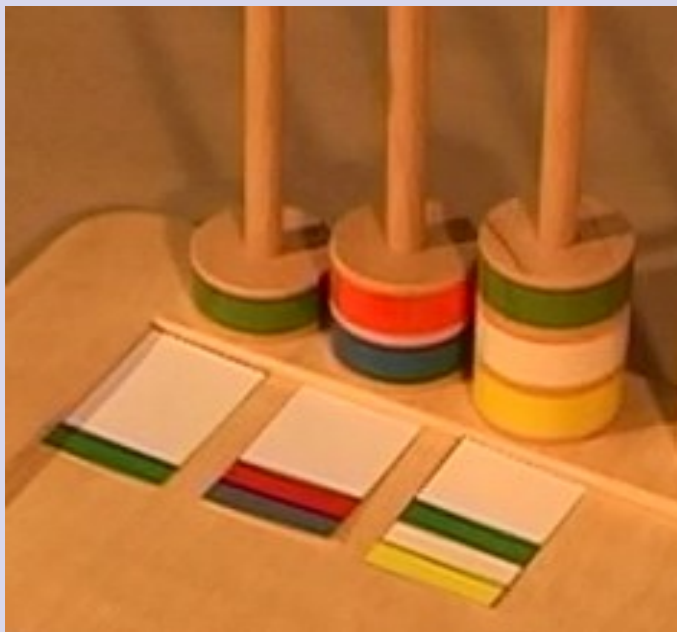


KVANTITA

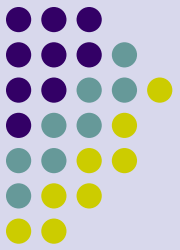


NAVLÉKADLO

MULTIFUNKČNOST (KVANTITA, USPOŘÁDÁNÍ)

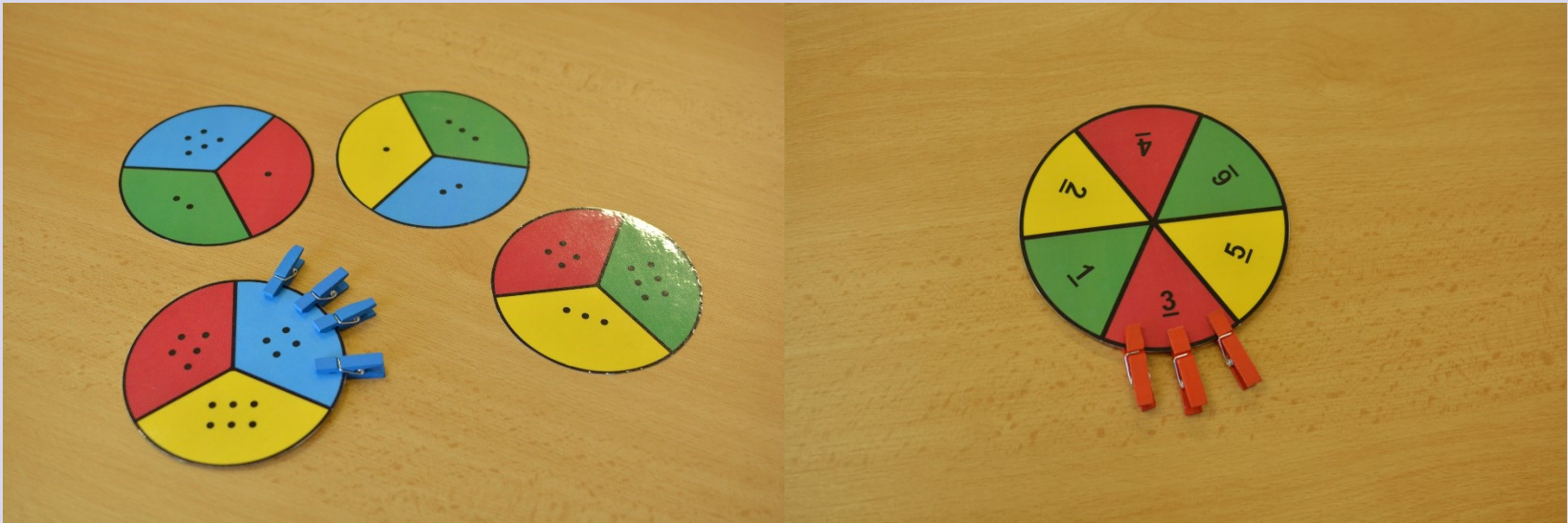


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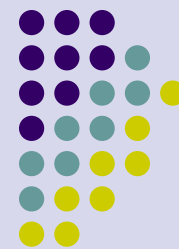


TERČÍK

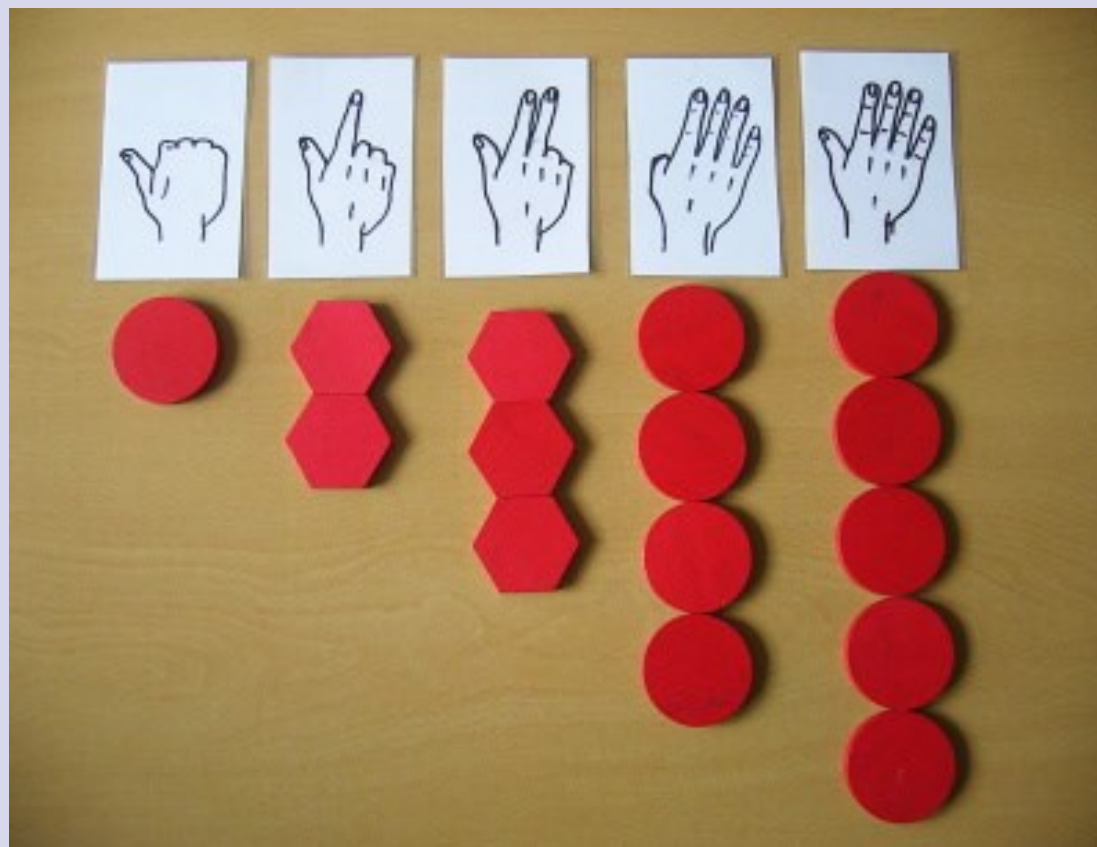
MANIPULACE, HRACÍ KOSTKA



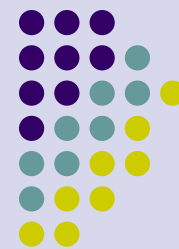
KVANTITA



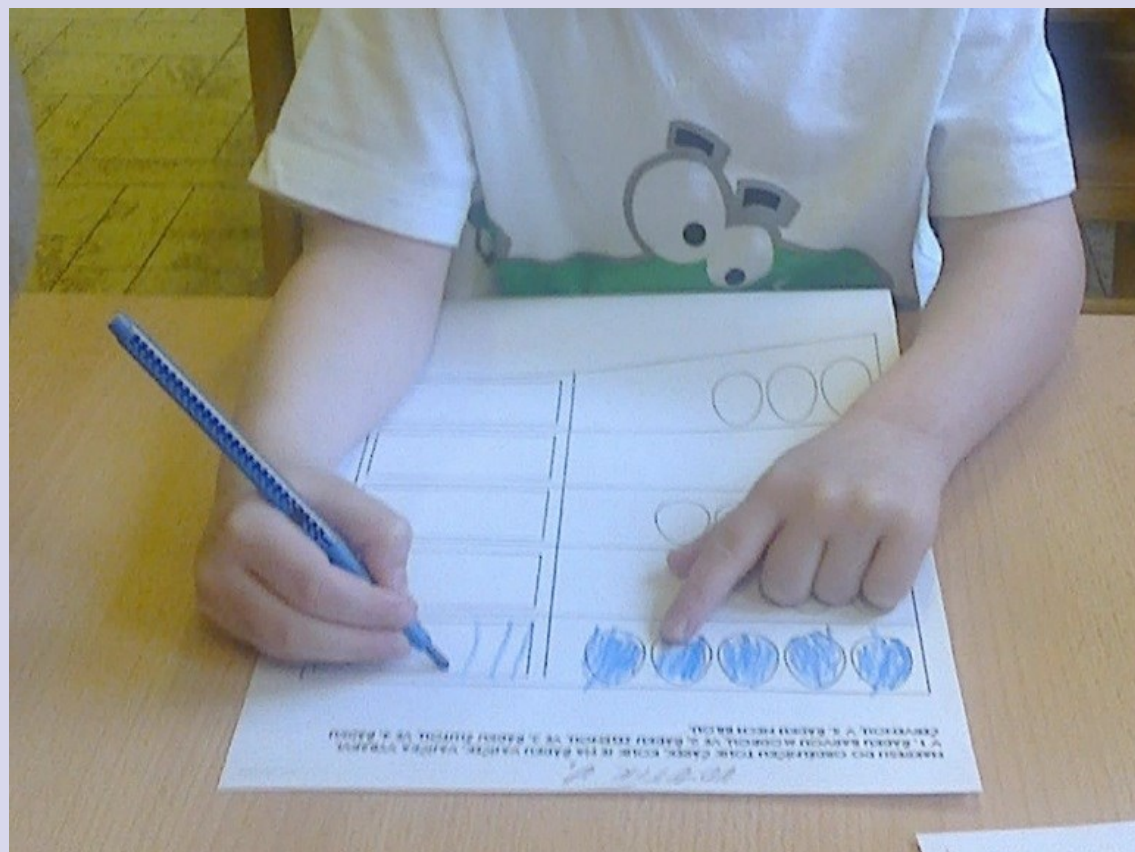
ZÁZNAM KVANTITY



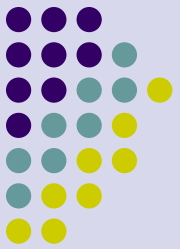
KVANTITA



ZÁZNAM KVANTITY

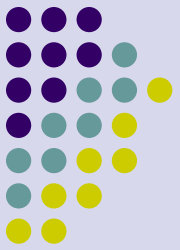


GEOMETRIE

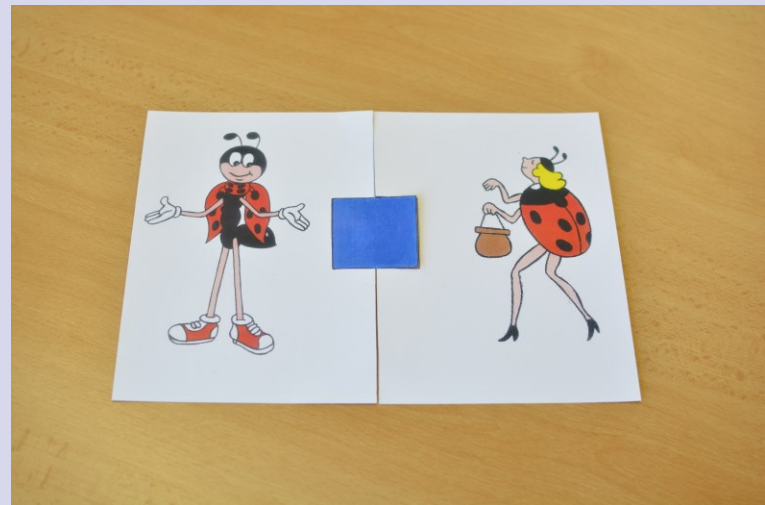


- GEOMETRIE TVARU
- RELATIVNÍ MĚŘENÍ
- SYMETRIE, SHODNOST
- ORIENTACE V ROVINĚ A PROSTORU

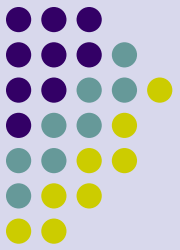
GEOMETRIE TVARU



POHÁDKOVÉ DVOJICE

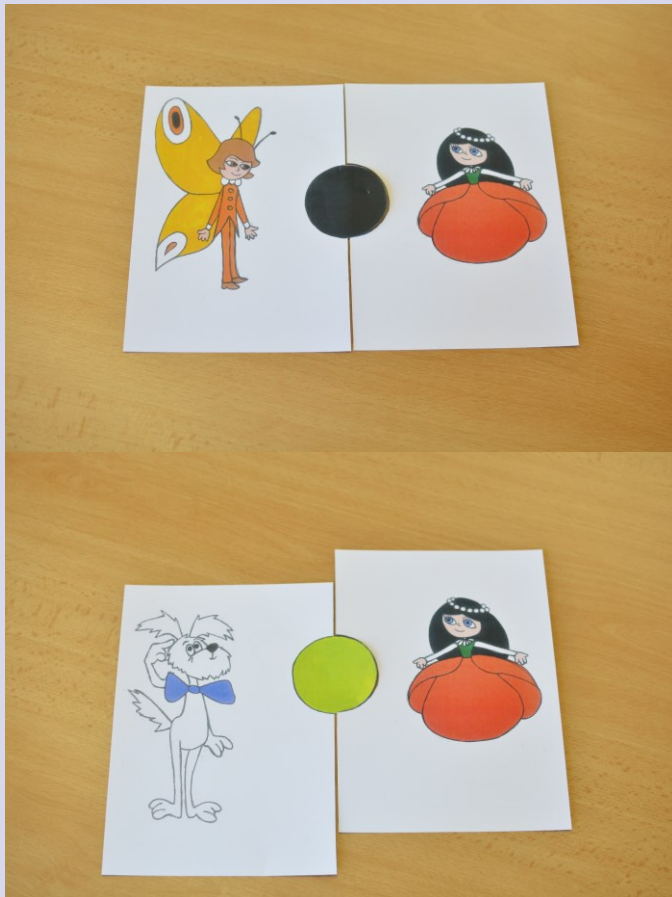


GEOMETRIE TVARU

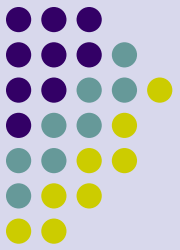


PŘIŘAZOVÁNÍ

POHÁDKOVÉ DVOJICE



GEOMETRIE TVARU

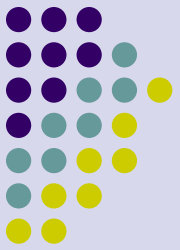


PŘIŘAZOVÁNÍ

TVAR x BARVA x NÁZEV



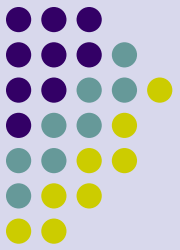
GEOMETRIE TVARU



PROTIKLADY



GEOMETRIE TVARU

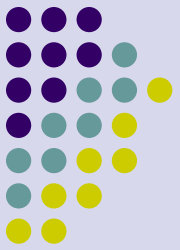


GRADOVANÉ ÚLOHY

❖ POHLEDNICE

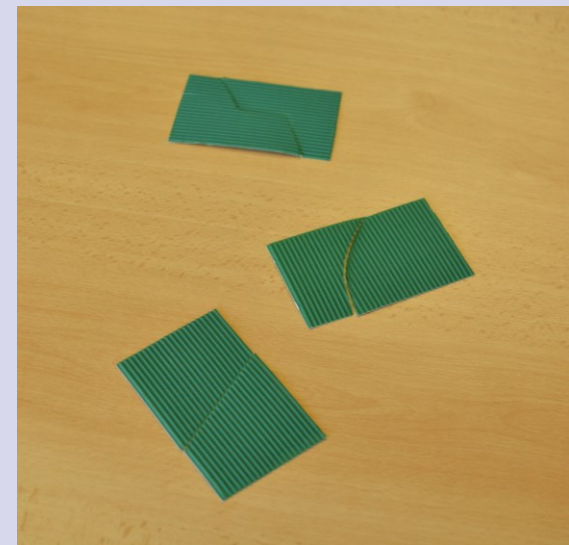


GEOMETRIE TVARU

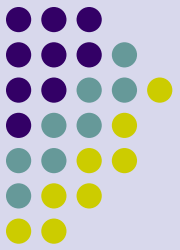


GRADOVANÉ ÚLOHY

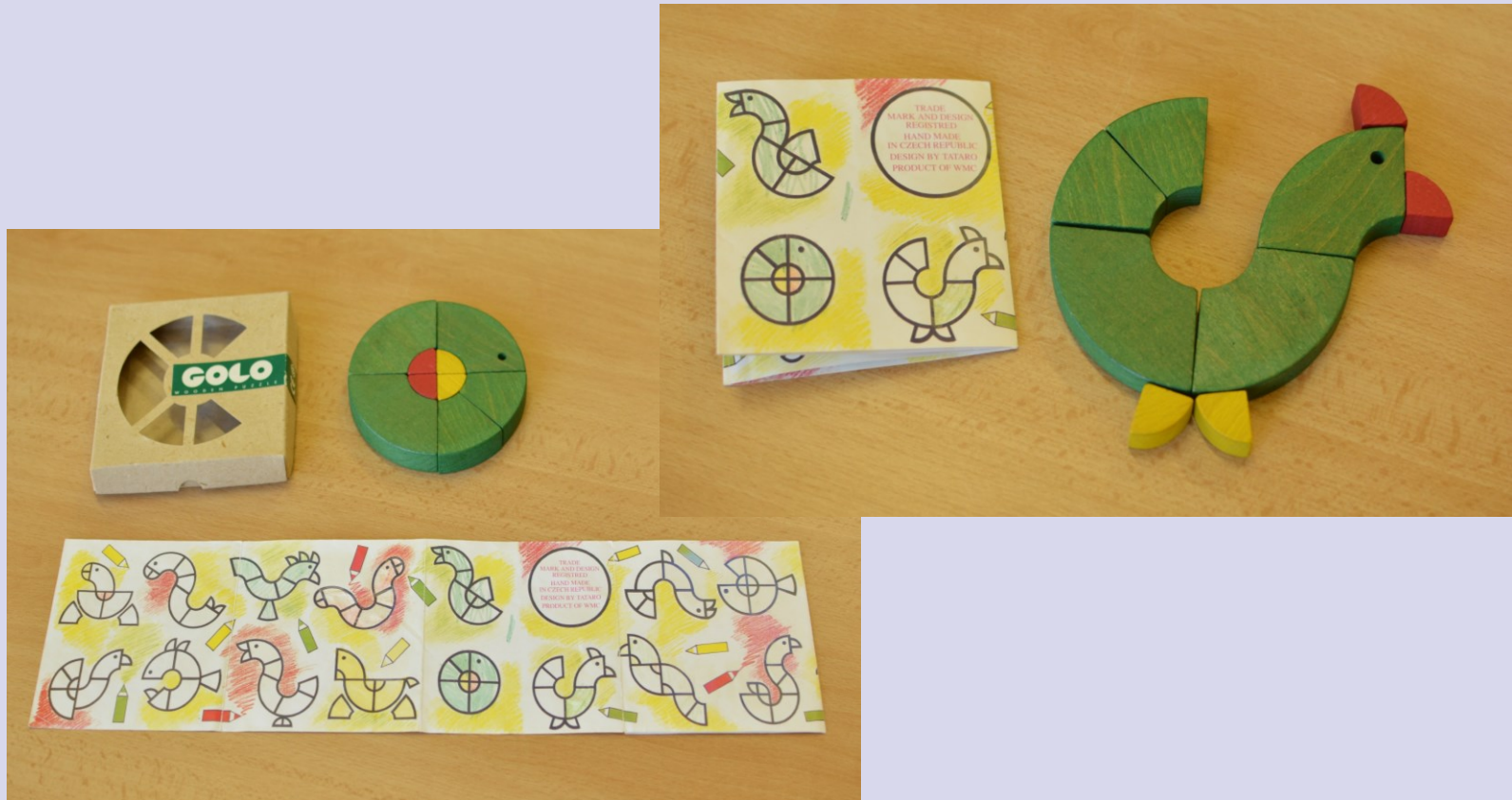
❖ OBDÉLNÍKY



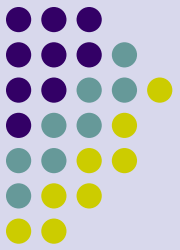
GEOMETRIE TVARU



GOLO (TANGRAMY)

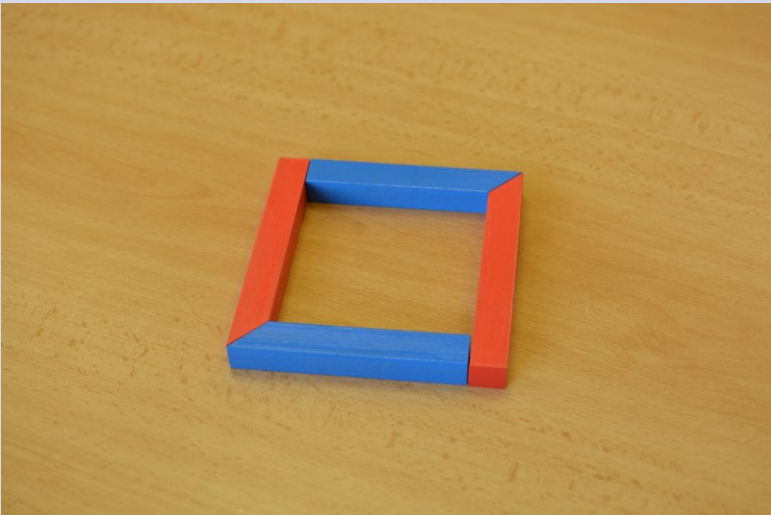


RELATIVNÍ MĚŘENÍ



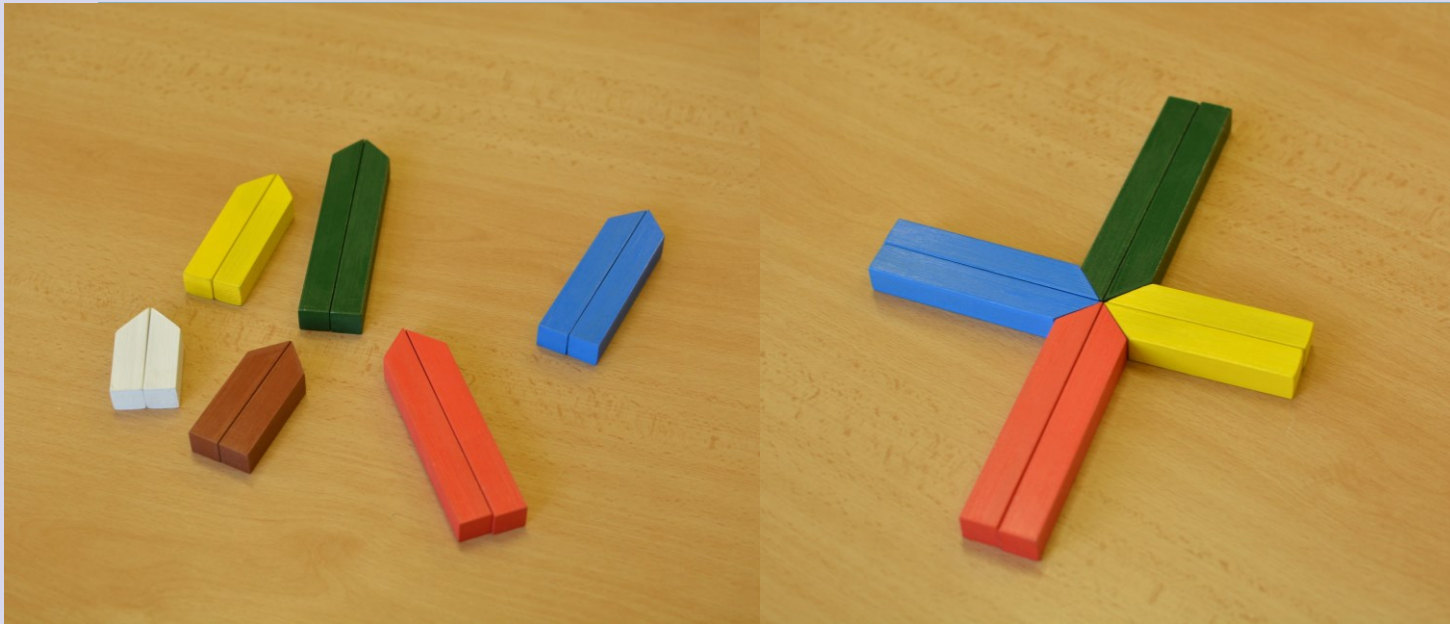
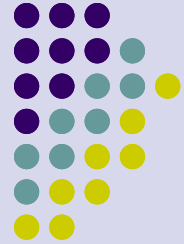
POROVNÁVÁNÍ

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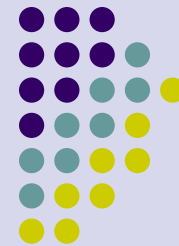


RELATIVNÍ MĚŘENÍ

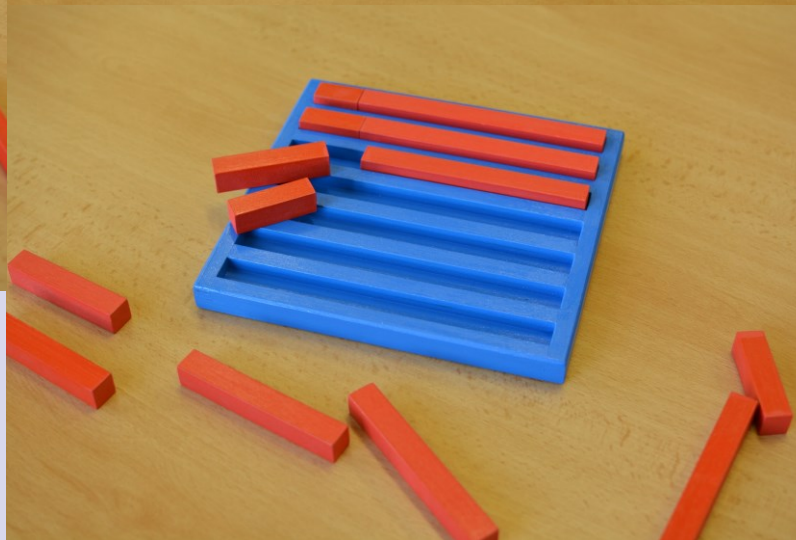
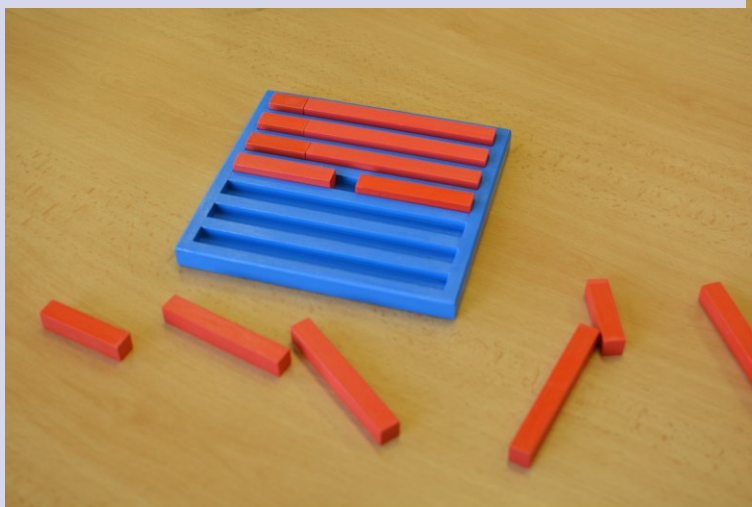
POROVNÁVÁNÍ, SKLÁDÁNÍ



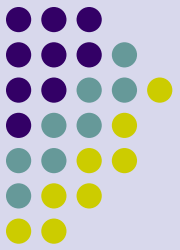
RELATIVNÍ MĚŘENÍ



HRANOLY



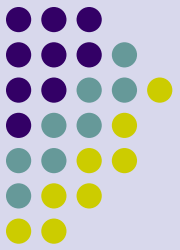
SHODNOST



PANÁČCI



SHODNOST

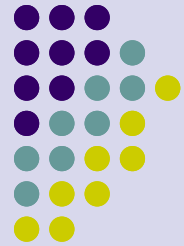


PANÁČCI



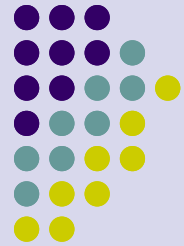
SHODNOST

DEN A NOC



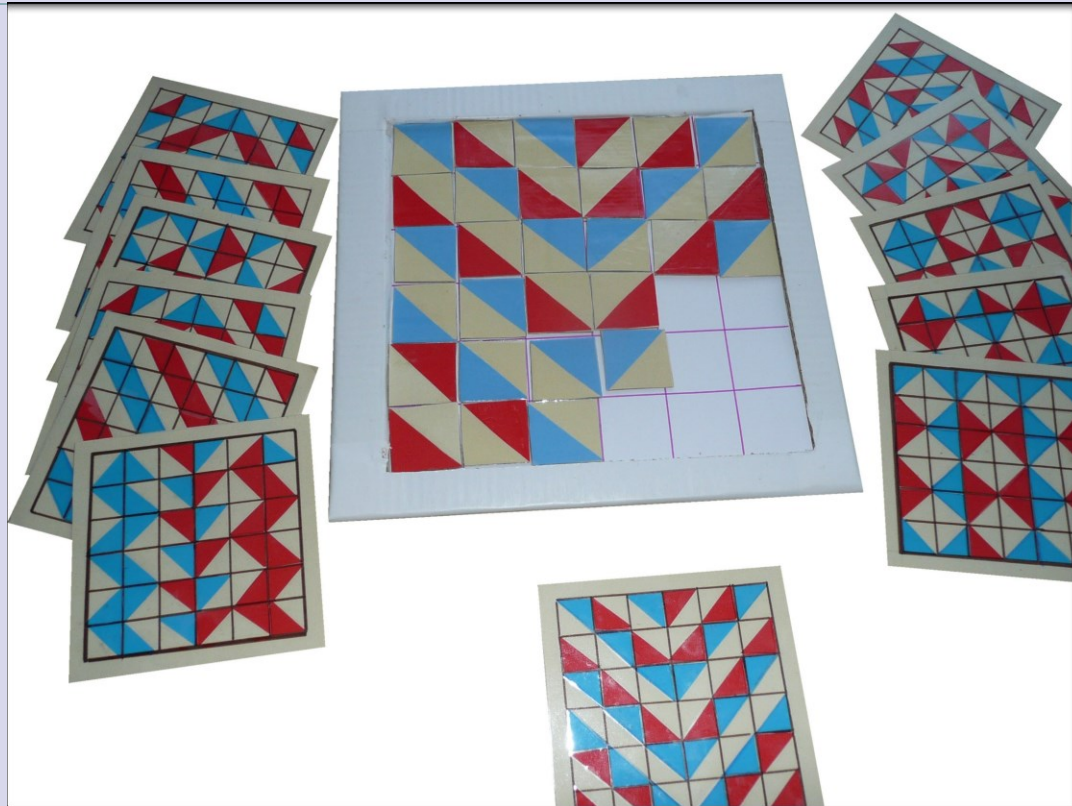
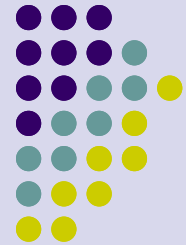
SHODNOST

DEN A NOC

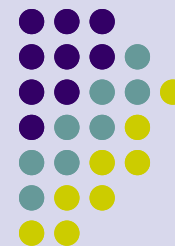


SHODNOST, SYMETRIE

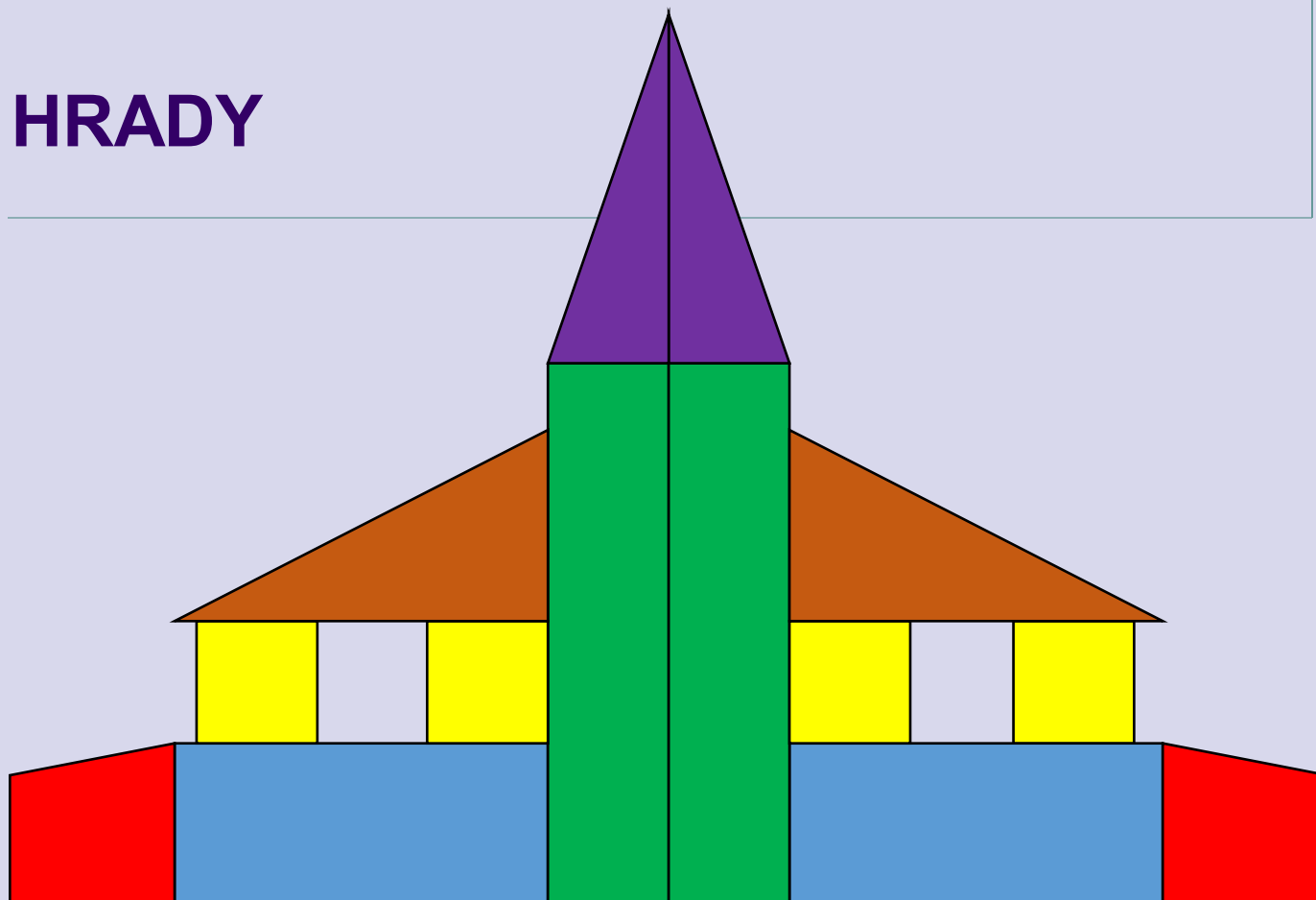
MOZAIKA



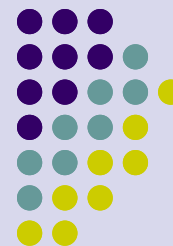
SHODNOST, SYMETRIE



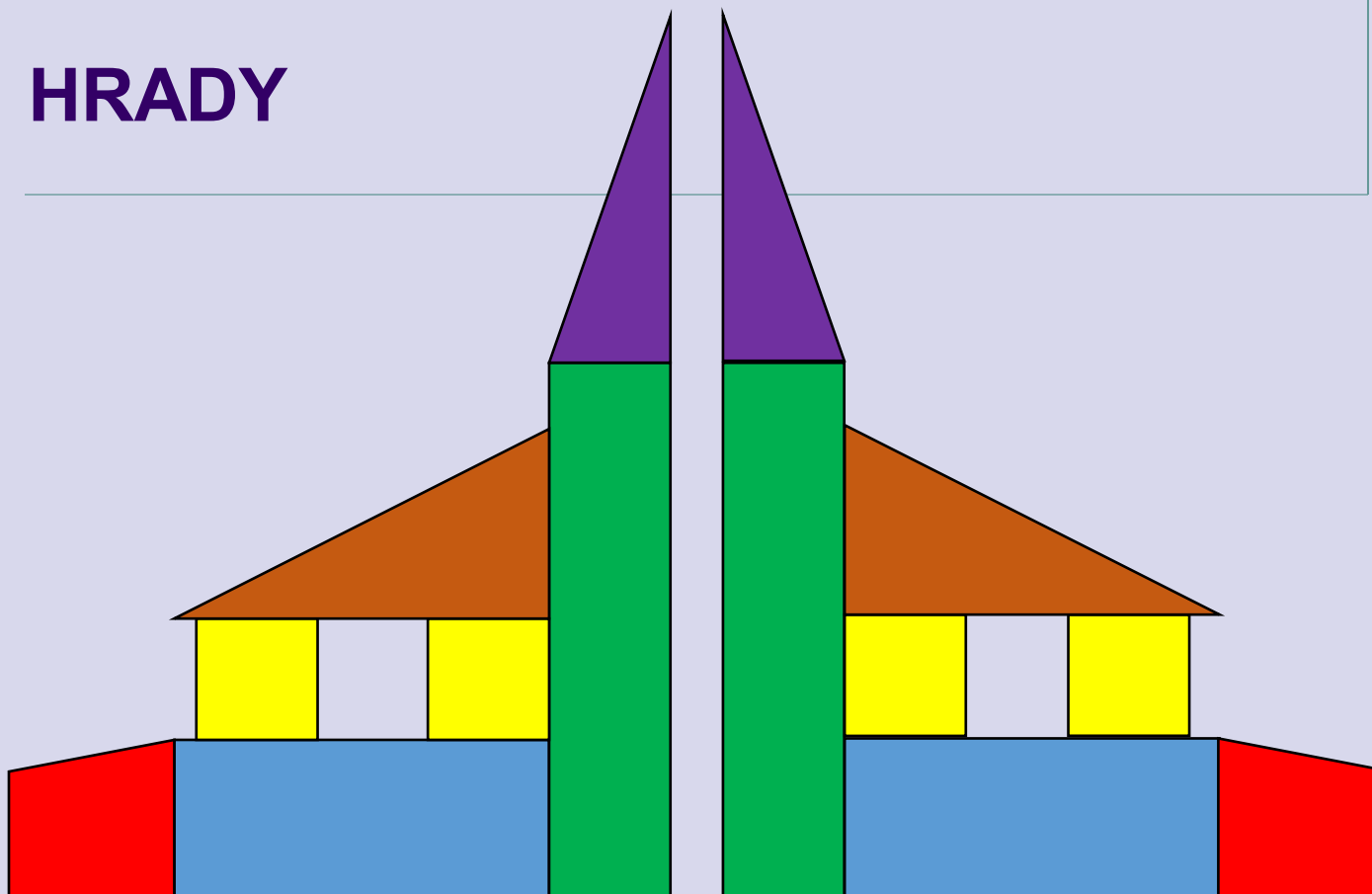
HRADY



SHODNOST, SYMETRIE

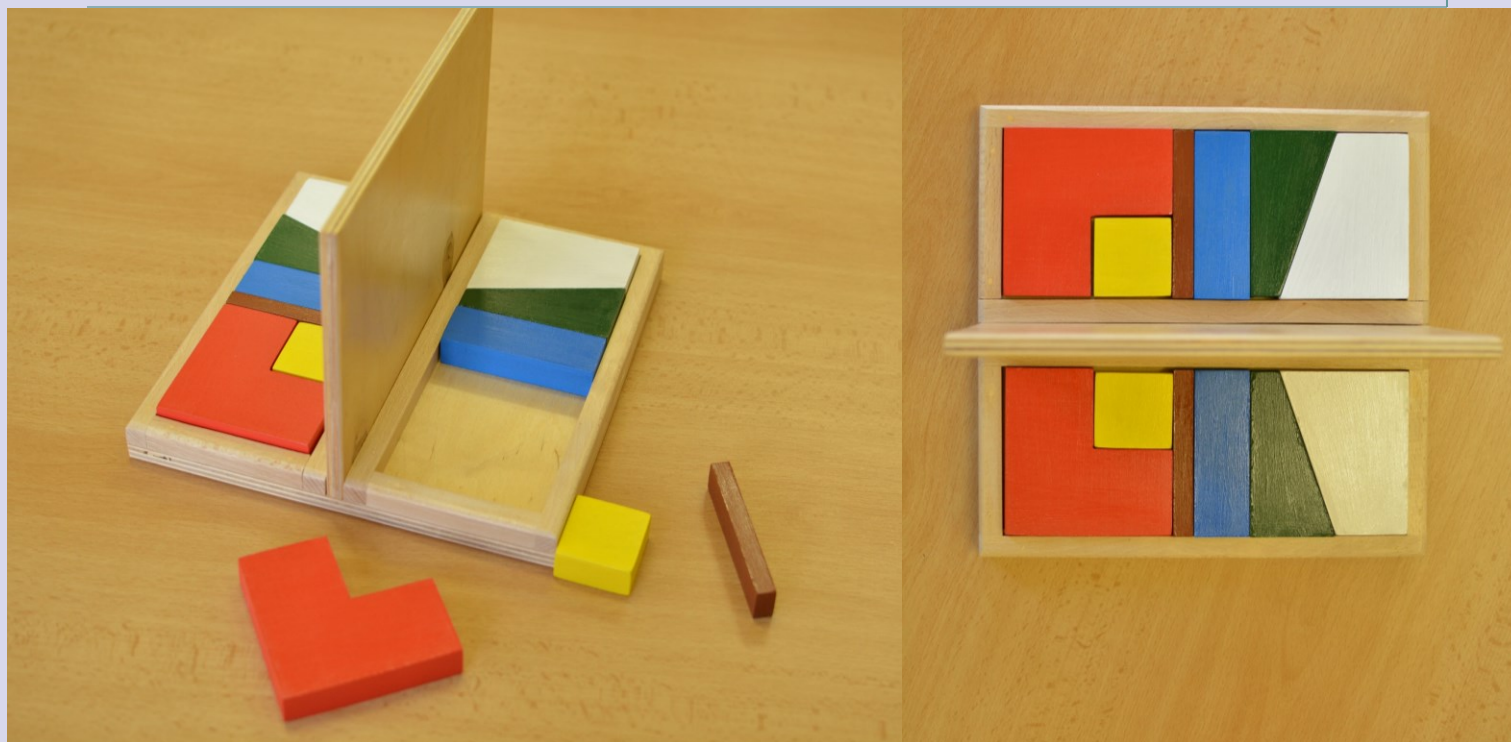
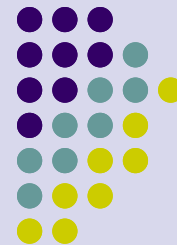


HRADY



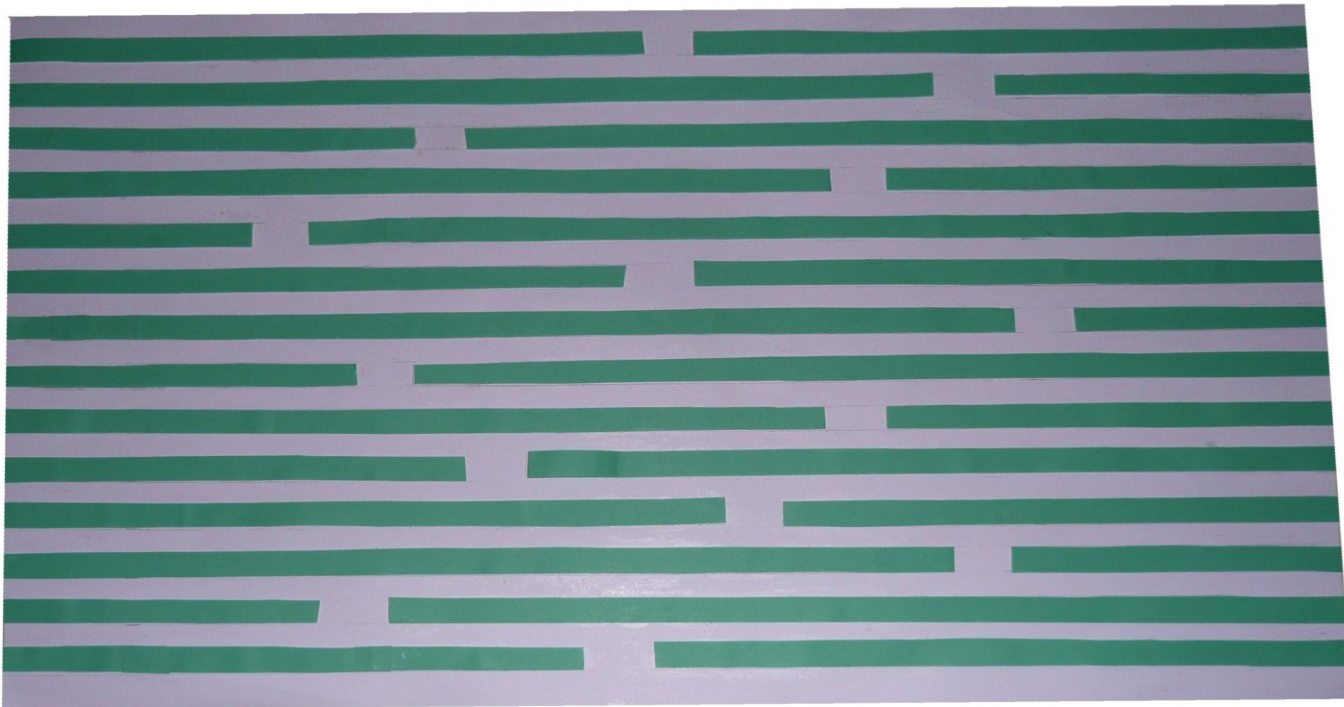
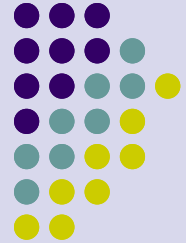
SHODNOST, SYMETRIE

ZÁSTĚNA

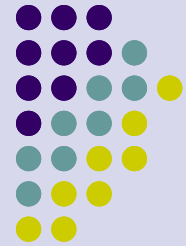


ORIENTACE V ROVINĚ A PROSTORU

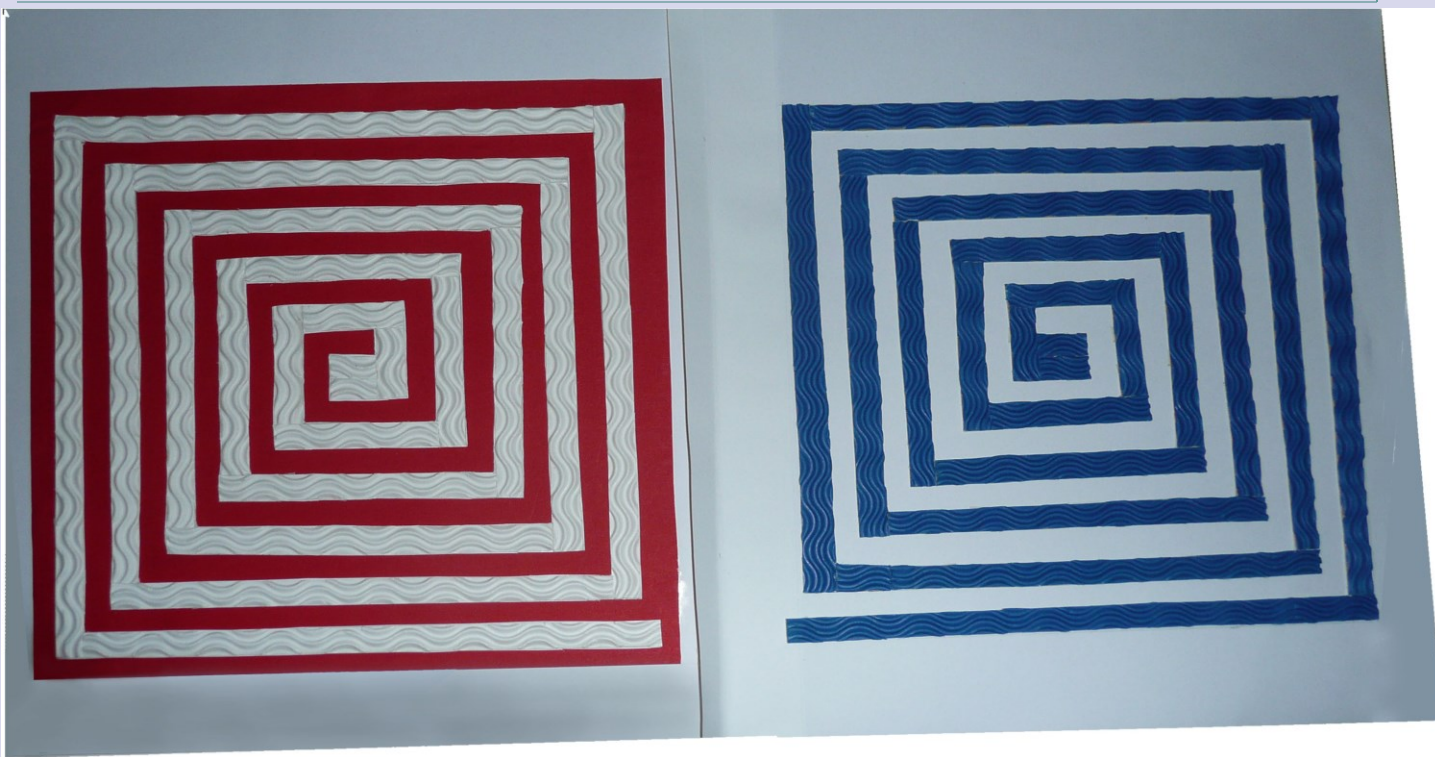
BLUDIŠTĚ



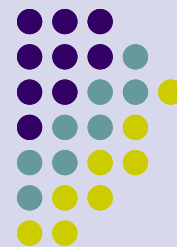
ORIENTACE V ROVINĚ A PROSTORU



BLUDIŠTĚ



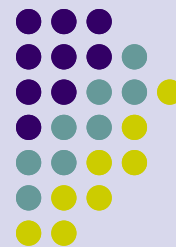
ORIENTACE V ROVINĚ A PROSTORU



SCHODY



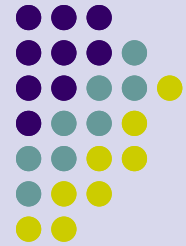
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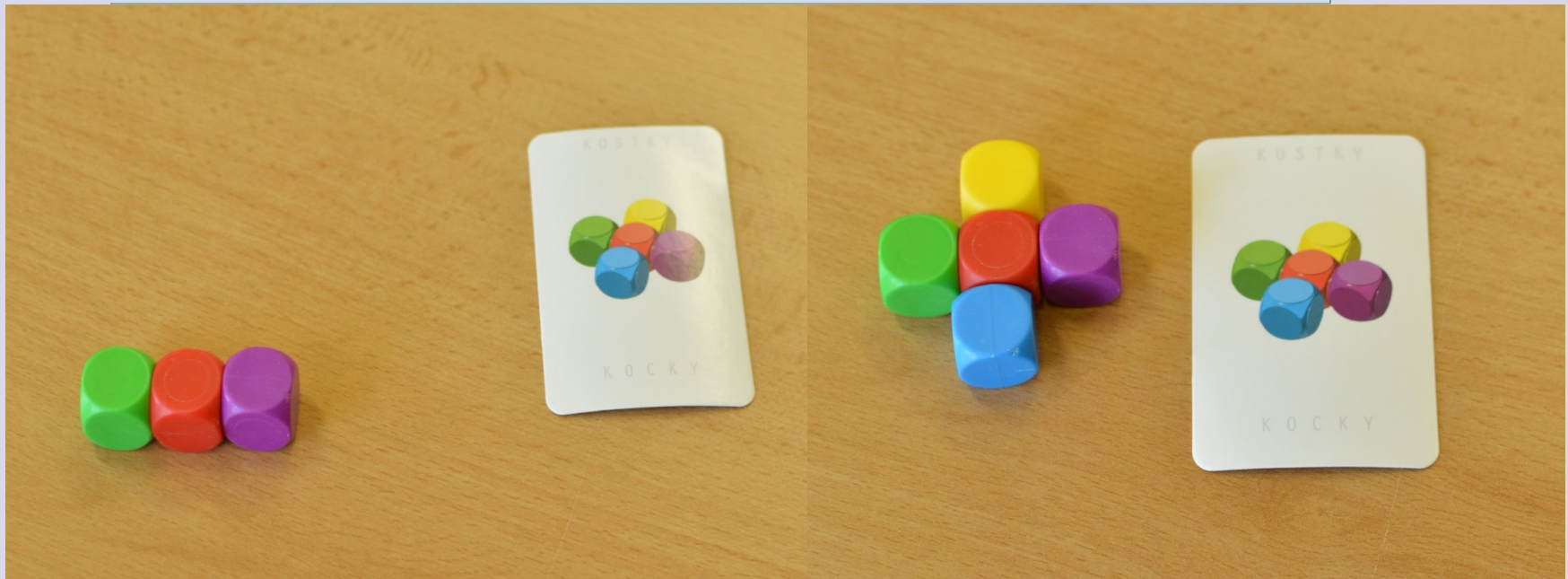
SCHODY



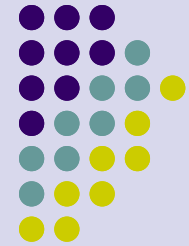
ORIENTACE V ROVINĚ A PROSTORU



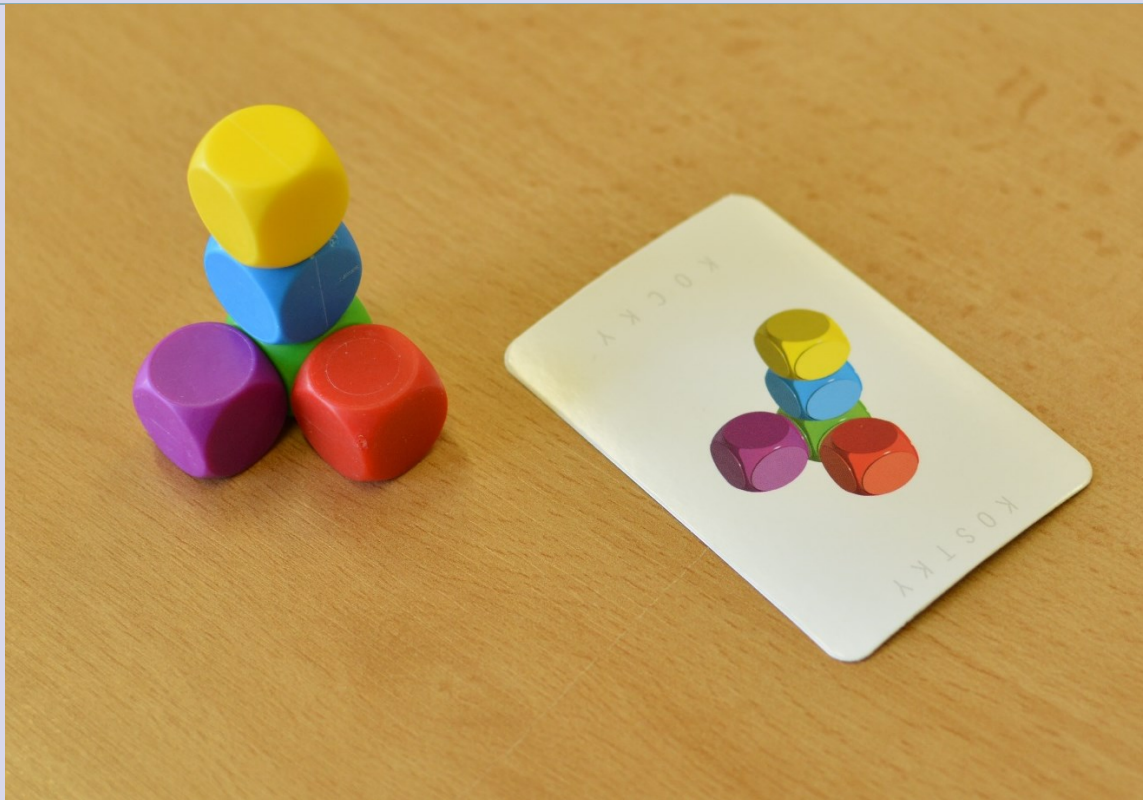
PAMĚŤ 3D



ORIENTACE V ROVINĚ A PROSTORU

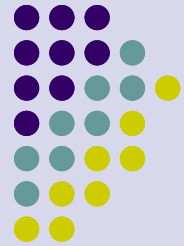


PAMĚŤ 3D



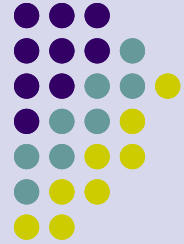
ORIENTACE V ROVINĚ A PROSTORU

BAREVNÝ KÓD



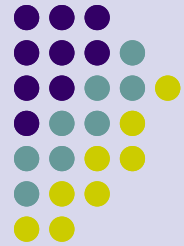
ORIENTACE V ROVINĚ A PROSTORU

BAREVNÝ KÓD



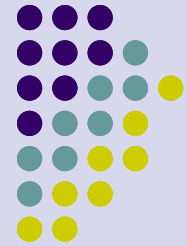
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BAREVNÝ KÓD

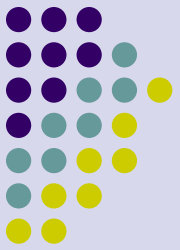


ORIENTACE V ROVINĚ A PROSTORU

STAVITELÉ



PROSTOROVÉ VNÍMÁNÍ

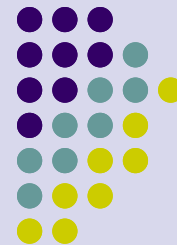


FANTAZIE nebo ANALÝZA a SYNTÉZA



MNOŽINY A RELACE

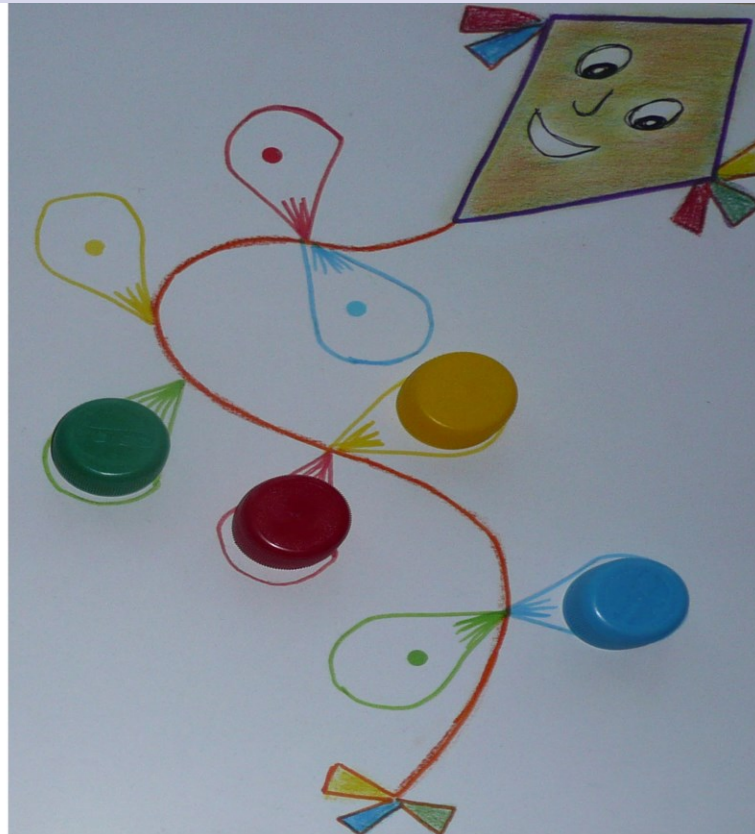
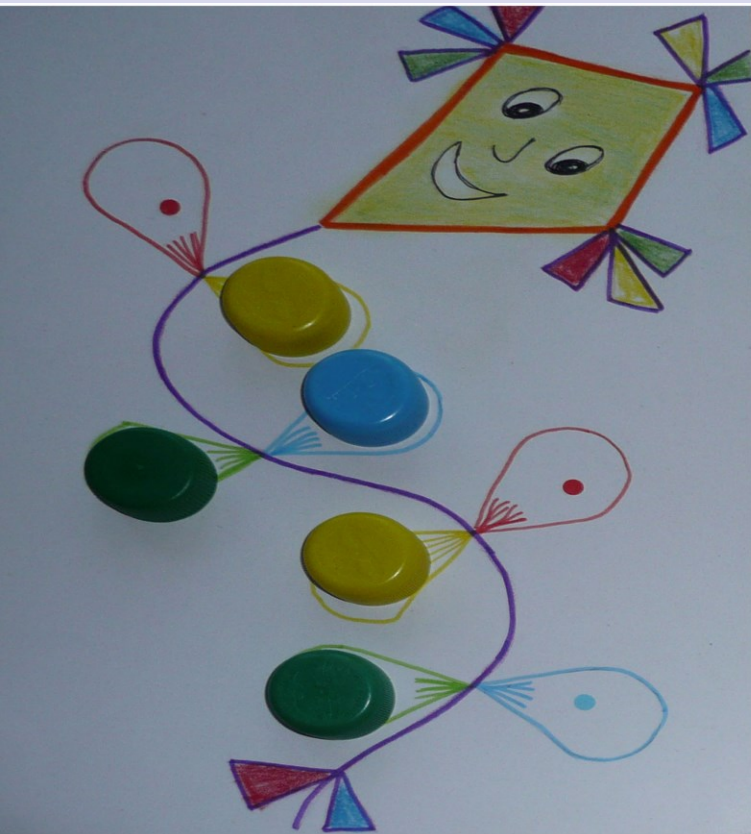
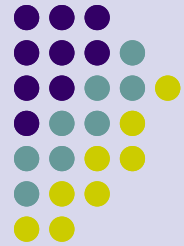
Rozvoj prelogického myšlení



- ❖ TŘÍDĚNÍ
- ❖ USPOŘÁDÁNÍ
- ❖ KOMBINACE

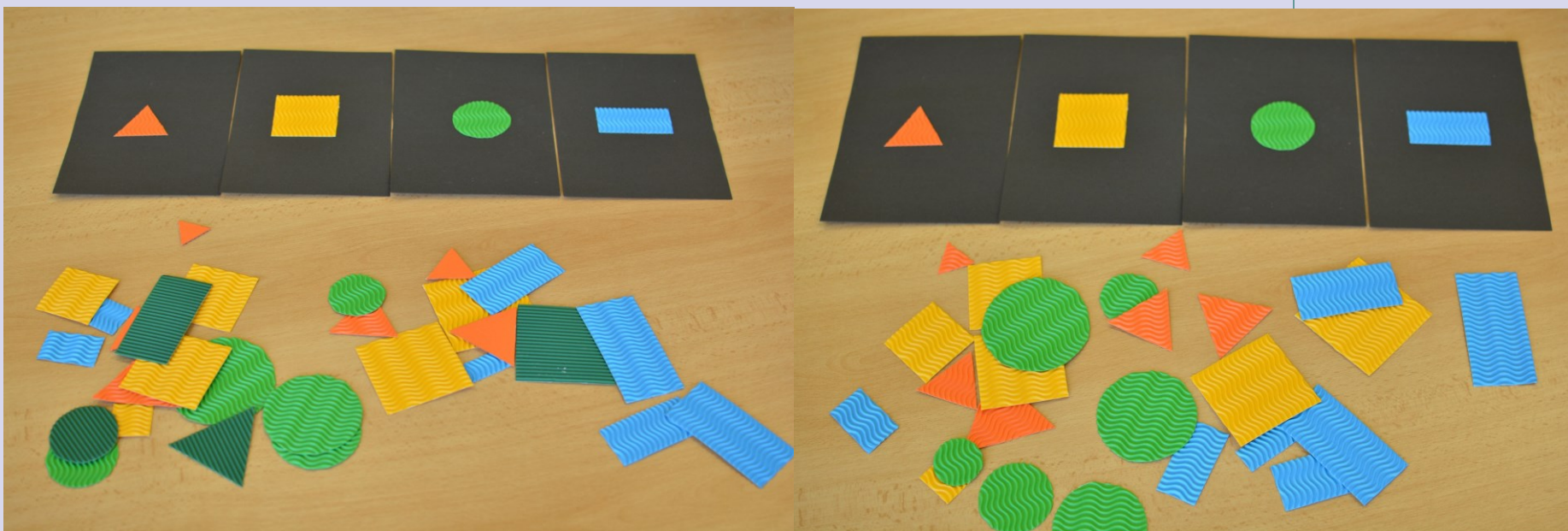
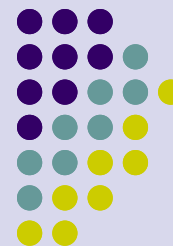
TŘÍDĚNÍ

DRACI



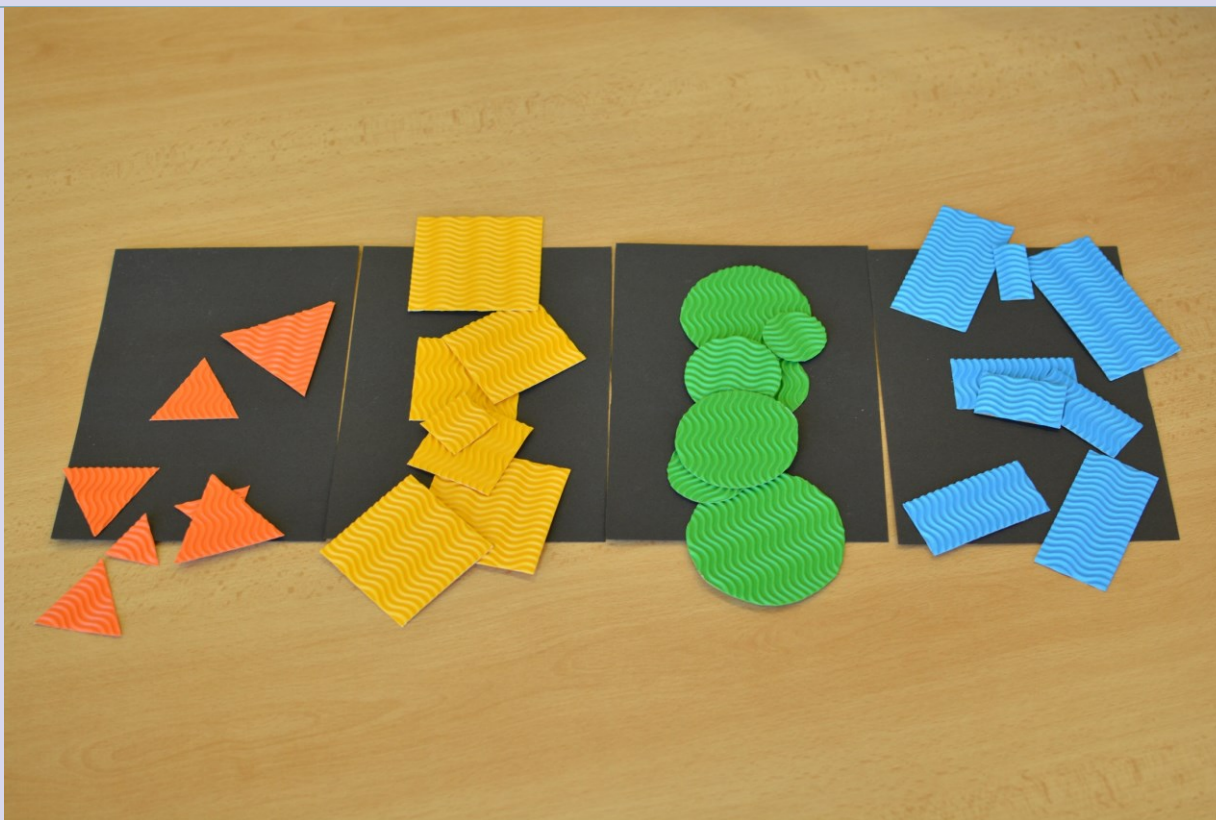
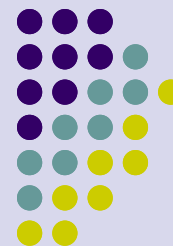
TŘÍDĚNÍ

GEOMETRICKÉ TVARY



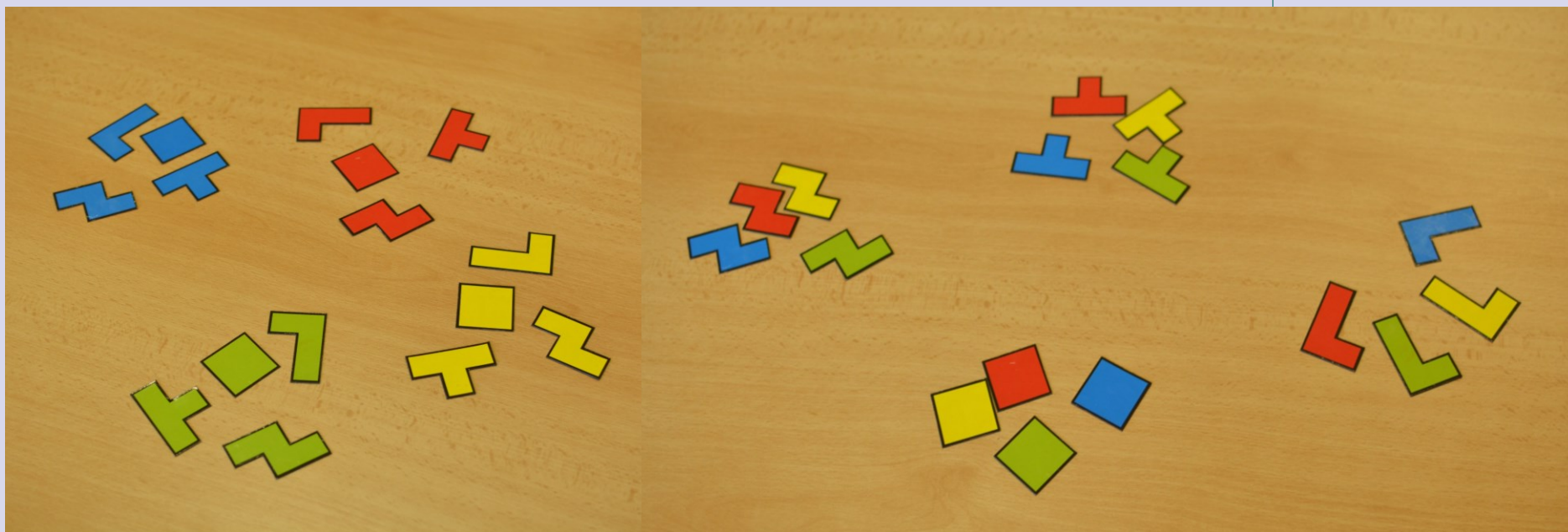
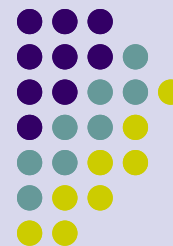
TŘÍDĚNÍ

GEOMETRICKÉ TVARY



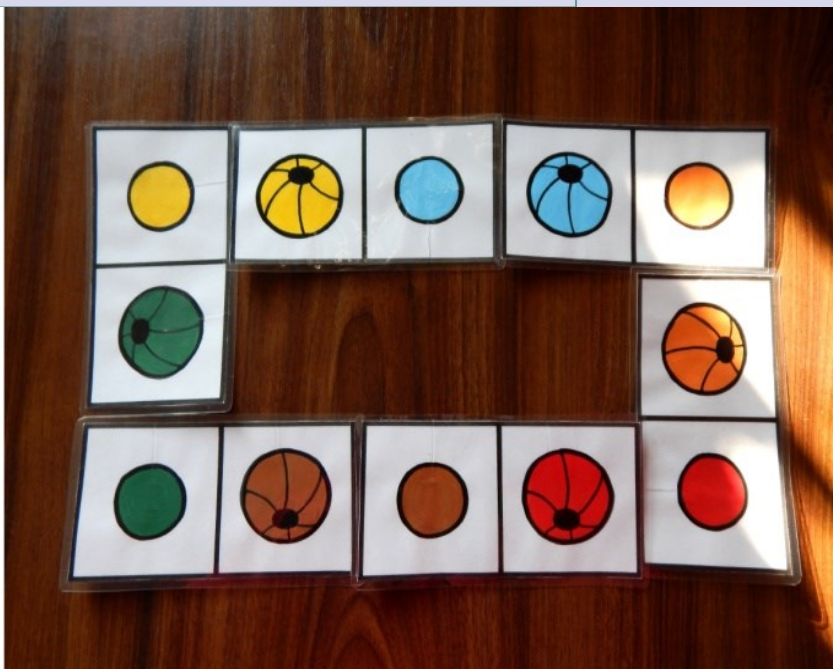
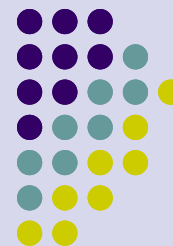
TŘÍDĚNÍ

BARVA x TVAR



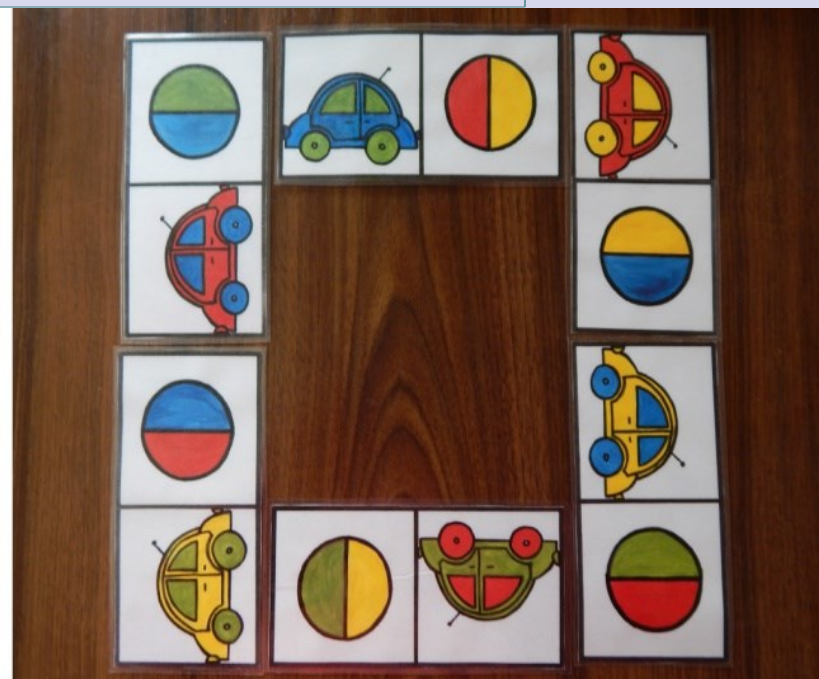
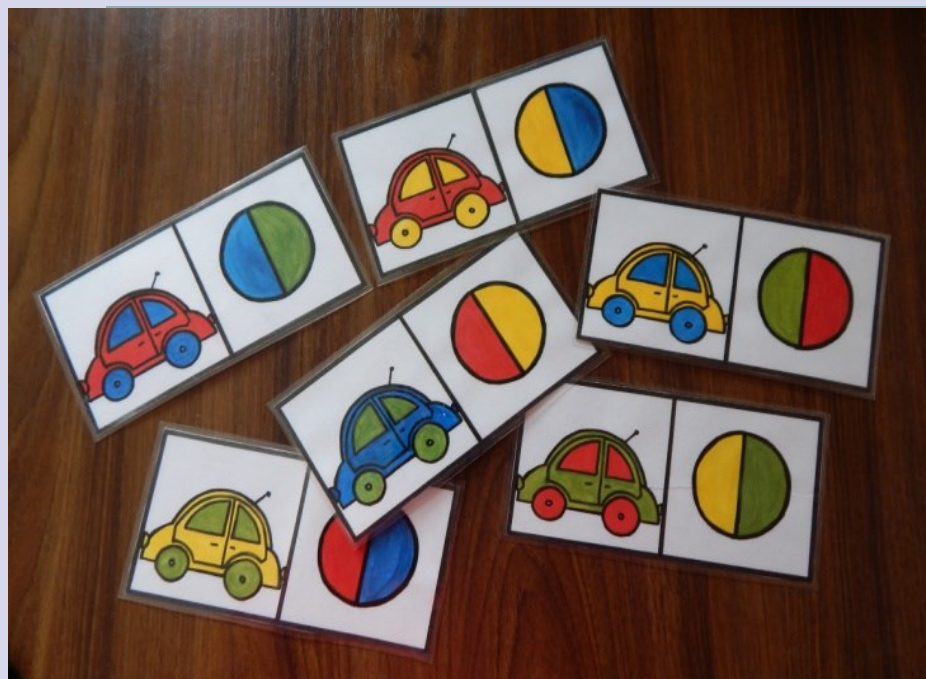
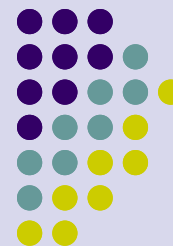
TŘÍDĚNÍ

DOMINO - MÍČE



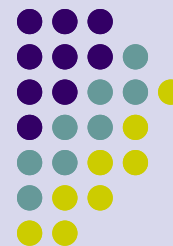
TŘÍDĚNÍ

DOMINO - AUTA



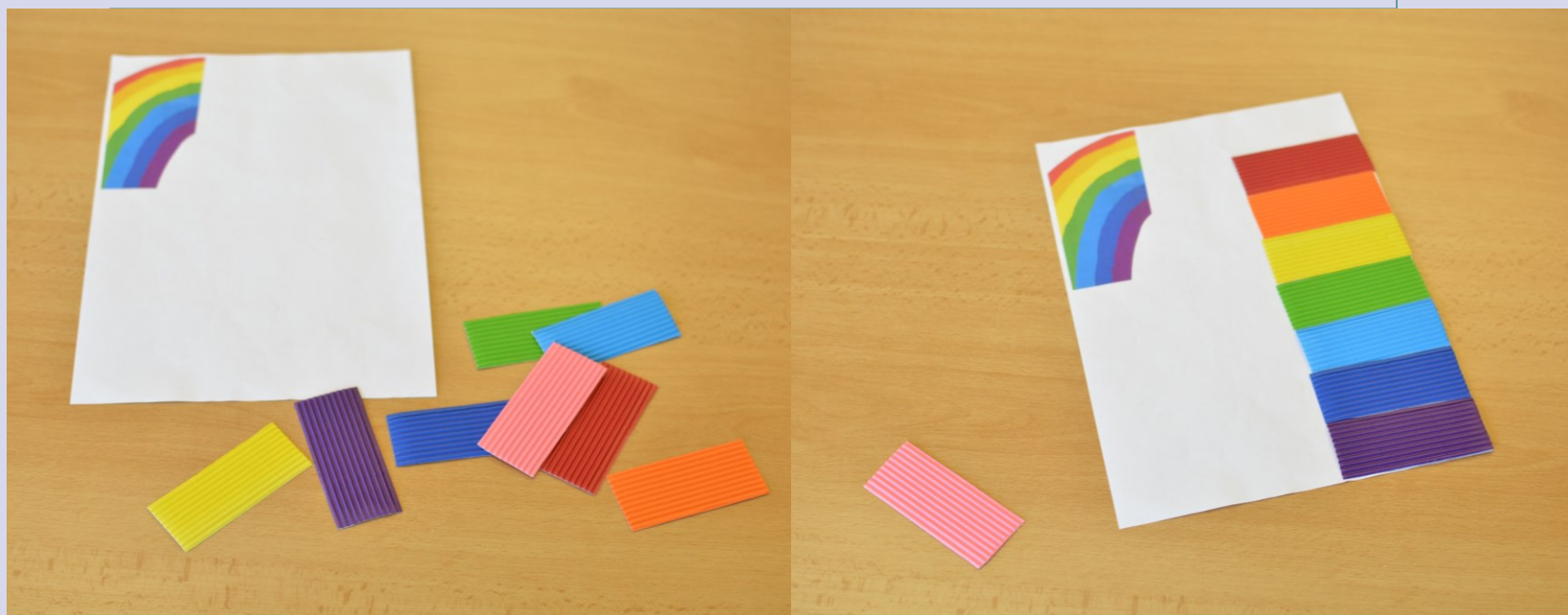
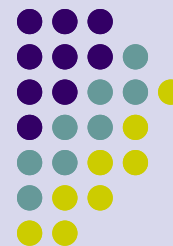
TŘÍDĚNÍ

DOMINO - BERUŠKY



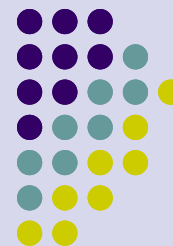
USPOŘÁDÁNÍ

DUHA



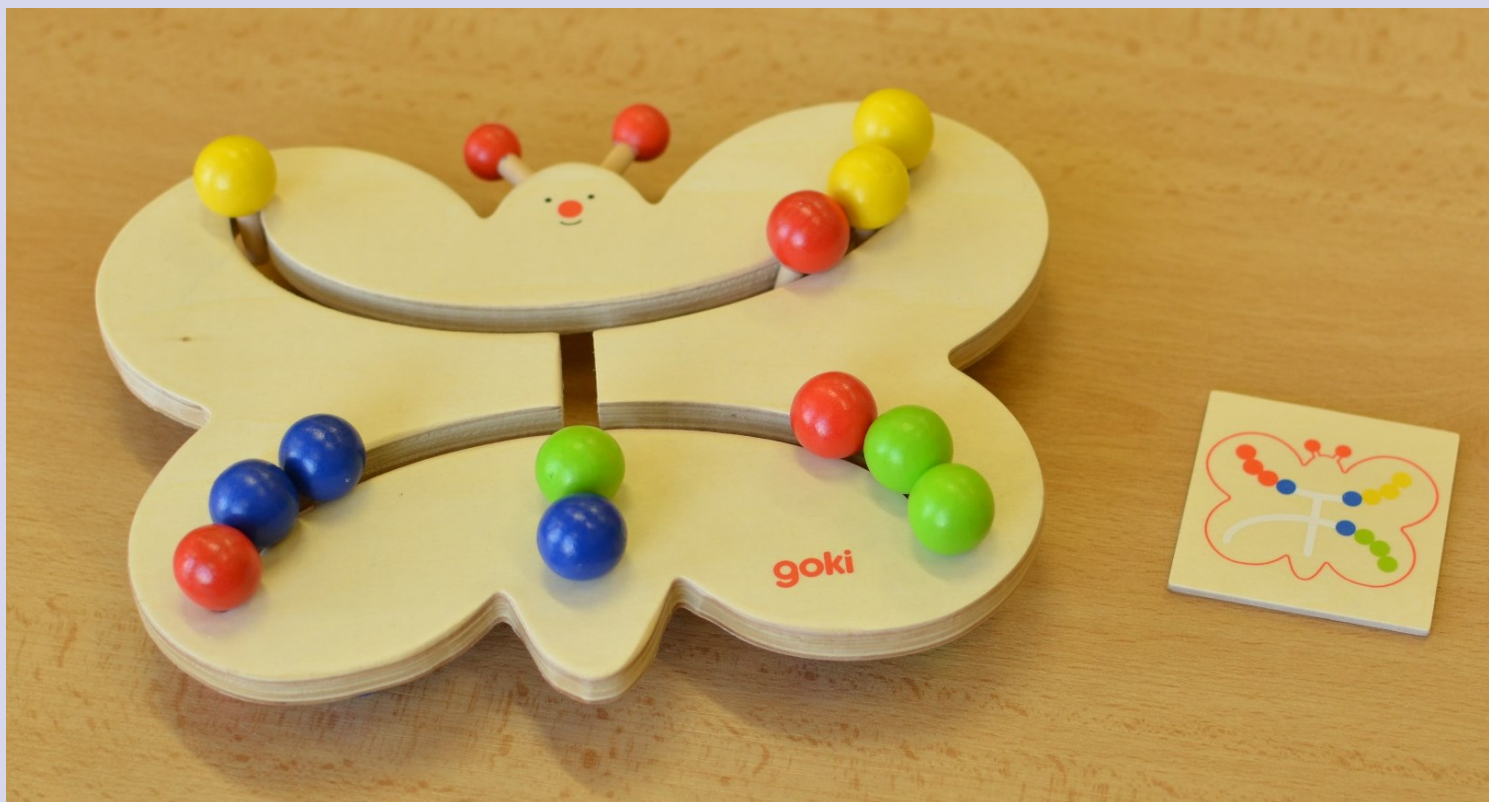
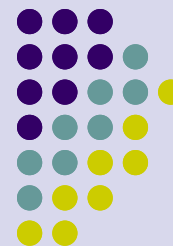
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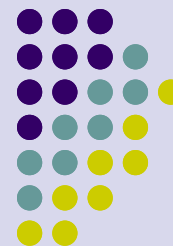
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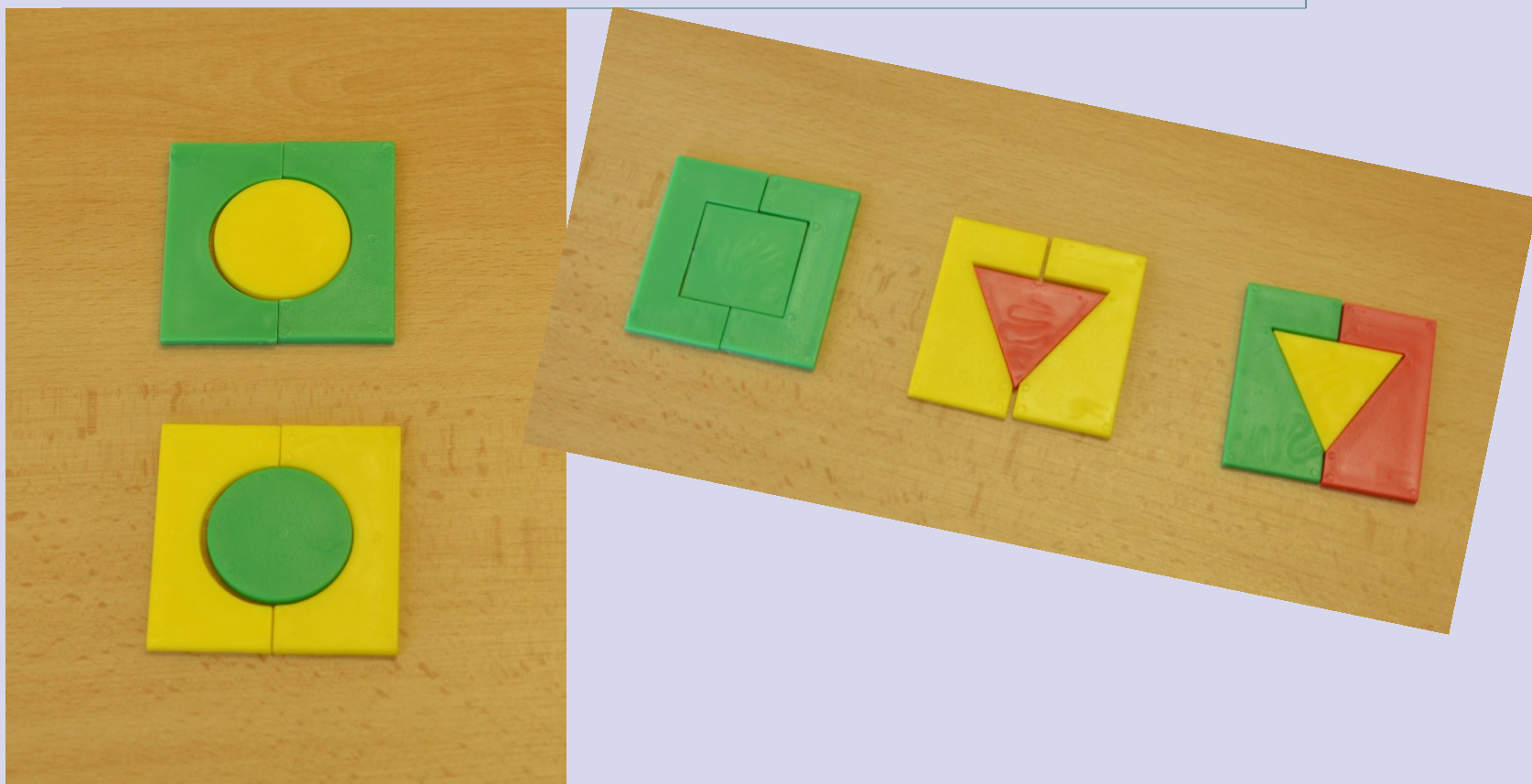
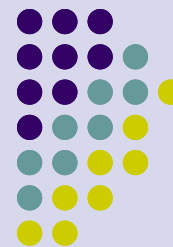
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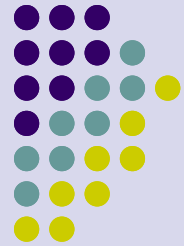
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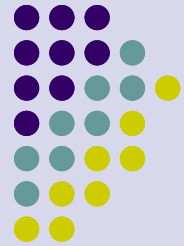
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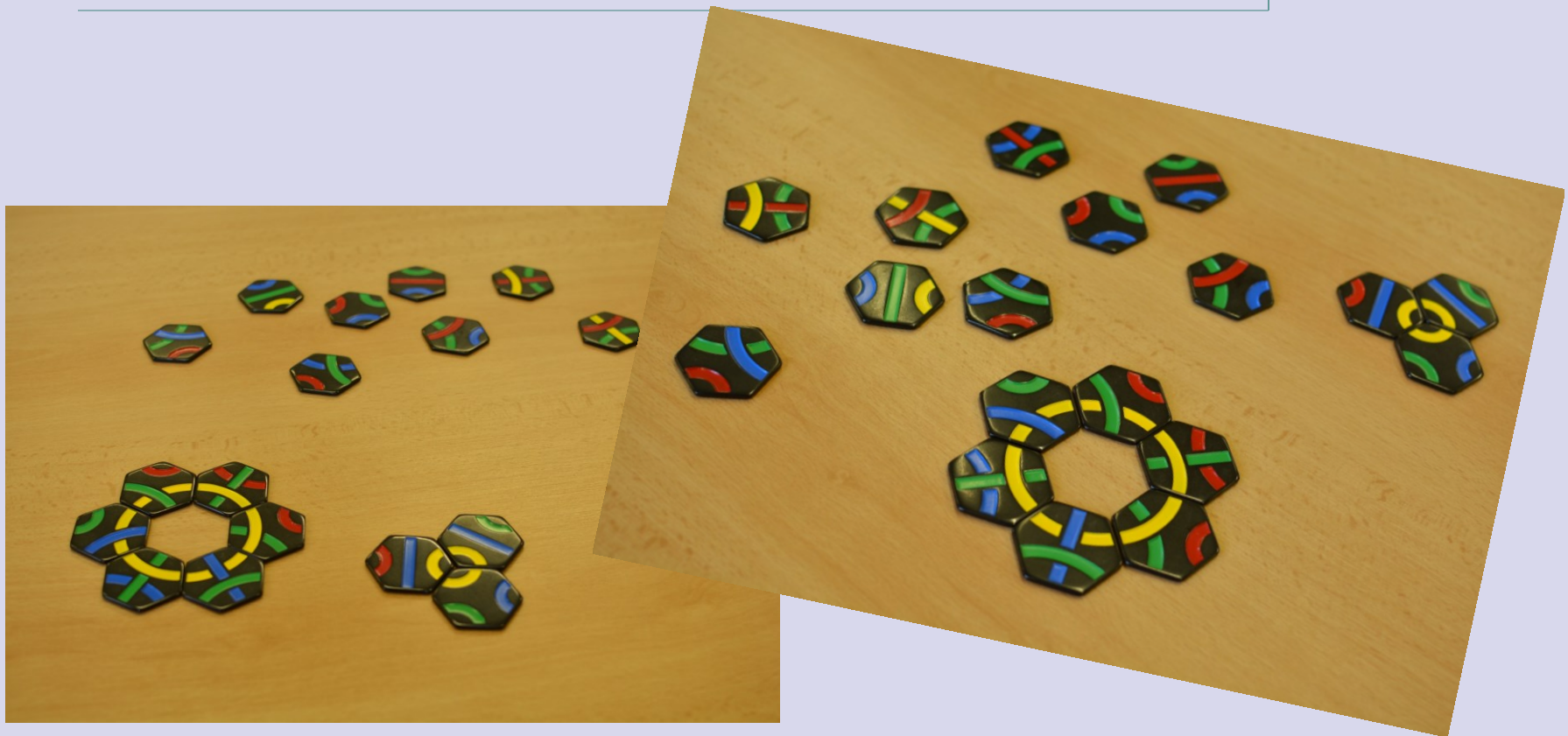
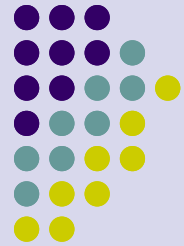
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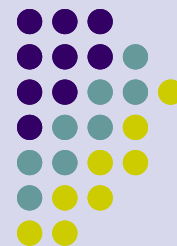
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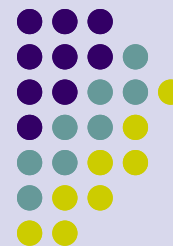
TANTRIX





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HANA LIŠKOVÁ